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DR. J. F. MONK

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PREFACE

Volume 104 of the *Bulletin* has maintained its usual size in 51 different papers covering 38 geographical areas and by 62 authors of some 20 or so nationalities. The Editor wishes to thank all authors, referees and the Caxton & Holmesdale Press for their friendly co-operation, which is the nicest of rewards. J. H. Elgood has made his usual careful compilation of the Index and the Club is indebted to him, as well as to the Hon. Secretary and Hon. Treasurer for the amendments to the Members List.

JAMES F. MONK (Editor)

COMMITTEE

1983-84

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CORRIGENDA

p. 3, line 31: *'wilkinsi'* not *'wilkinsis'*
p. 7, line 12: *'R.m.albiventris'* not *'P.m.albiventris'*
p. 8, line 22: *'Syzygium'* not *'Syzgium'*
p. 10, Redstart—delete last sentence
p. 15, line 14: *'Cinclorhamphus'* not *'Cincloramphus'*
pp. 17-18 = Plates 1-2. For 'from top to bottom'
read 'from bottom to top' in both
p. 33, 2 lines from bottom: *'fuciphagus'* not *'fuciphaga'*
p. 34 line 20: *'fuciphagus'* not *'fuchiphagus'*
p. 34, lines 34 and 35: *'pyrrogenys'* not *'pyrrhogenys'*
p. 61, line 7: *'Chrysoena'* not *'Chrysoema'*
p. 85, line 34: *'libonyanus'* not *'libonyana'*
p. 85 line 48: *'Eremomela'* not *'Eromomela'*
p. 96, line 30: *'estella'* not *'stella'*
p. 137, line 1 of Table: *'Culicicapa'* not *'Culcicicapa'*
p. 142, 3 lines from bottom: *'leucoptera'* not *'leucopterus'*
p. 149, Table 1, line 6: *'leucocephala'* not *'leucocephalus'*

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Edited by
Dr. J. F. MONK

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Volume 104 No. 1 March 1984

FORTHCOMING MEETINGS

Tuesday, 22 May 1984 at 6.20 p.m. for 7 p.m., at in the Senior Common Room, South Side, Imperial College, Prince's Gardens, S.W.7, **Mr Peter Hayman,** the well known artist and illustrator, will speak on **Raptors and Identification Techniques.** There will be a hot buffet supper and those wishing to attend should send their acceptance with a cheque for £4.80 a person to reach the Hon. Secretary at 2 Chestnut Lane, Sevenoaks, Kent TN13 3AR (telephone Sevenoaks [0732] 450313) not later than first post on Thursday, 17 May.

Tuesday, 3 July 1984 at 6.20 p.m. for 7 p.m., at the same venue **Dr Andrew Richford,** lately of the Edward Grey Institute, will speak on **Black Vultures in Majorca.** Those wishing to attend should send their acceptance with a cheque for £6.90 a person to reach the Hon. Secretary (address above) not later than first post on Thursday, 28 June.

Tuesday, 18 September 1984 Mr. A. J. Prater will speak on **Waders.**

Tuesday, 20 November 1984 Dr Clive Catchpole will speak on **Evolution of Bird Song.**

Tuesday, 11 December 1984 Dr Ian Newton will speak on **Recent Studies of Sparrowhawks.**

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REPORT OF THE COMMITTEE FOR 1983

Six Meetings were held during 1983 at Imperial College, five in the Senior Common Room in Prince's Gardens, S.W.7 and the July Meeting in that of the Sherfield Building. They were attended by 132 Members and 56 guests, the total of 188 being slightly lower than in the preceding year and similar to the annual mean 1972–1978, though much below the attendances 1979–1981. This recent drop might be attributed to a 55% increase in prices at Imperial College between mid 1981 and the end of 1983. The special programme for the 750th Meeting, held on 29 November, was particularly appreciated. The Committee met 6 times in 1983 and the average attendance of the 9 Members was 85%. The Rules were re-printed in the *Bulletin* Index for 1982, 23 years after last being published.

It is with deep regret that the Committee reports the death of Mr I. G. Manklow, F.C.A., (Member 1979–1983) and of Mr R. Wagstaffe (Member 1948–1983).

There were 21 new Members in the year and 7, who were in arrears at the end of 1982, paid up to date in 1983. There were 9 Members who resigned in respect of 1983 and 20 failed to pay their subscriptions during the year. Under Rule (4), 12 Members were struck off, having been in arrears with their subscriptions from 1982. The paid-up membership at the year end was 396 (222 with U.K. addresses, 174 overseas), 3 down on the year. The changes were generally similar to 1982, except that new Members were 16 fewer and those who brought their subscriptions up to date were up by 6 in 1983. The fall in new Members was not unexpected in view of a substantial reduction in those joining the British Ornithologists' Union in the year, which was the first year of an increased B.O.U. membership subscription. The Committee is not, however, complacent about the slight drop in Club membership and has planned measures to recruit more in 1984. Although no special measures were taken in 1983 to draw in new Members, leaflets were mailed to 1000 American Ornithologists' Union members to promote *Bulletin* subscriptions. The number of Bulletin subscribers showed no change on the year at 175 (28 U.K., 147 overseas) but there were 20 who did not renew, offset by 20 new subscribers. The increase in the overseas circulation of the *Bulletin* continued, the largest number of subscribers (56) being from the U.S.A., which also provided the largest number of overseas Members (34), followed by Australia (12), South Africa (11), The Netherlands (9), Japan (8) and Switzerland (6).

Commencing with the March number, the *Bulletin* has been dispatched sealed by Bulk Air Mail to the rest of Europe and by Accelerated Surface Post to almost all other countries. The extra cost has not been heavy and it is a service that overseas Members and *Bulletin* subscribers must readily appreciate. In addition to quicker transmission, particularly for longer distances, there have been fewer claims for copies lost in the post.

Back number sales were a record size for the Club and involved reproduction of a large number of issues. The handling of back number orders entails much work and the Club is very grateful to those who do this, most especially to Dr D. W. Snow, who handles the stocks of back issues. Runs of the *Bulletin* can be supplied back to Vol. 37 (1916–17) and there are also copies of earlier issues, including some complete volumes.

Volume 103 of the *Bulletin* ran to 146 pages and the delay between submission and publication of a paper remains at about 9 months or less. World coverage was as in other recent years, for which a comparison is made in the accompanying Table, compiled very roughly from the appropriate indices for the different zoo-geographical regions.

	Pal.	Afro.	Neo-Trop.	N earc.	Orient.	Austr.	Mala-gasy	General *et al.*	Totals
1983	4	19	7	1	5	5	1	1	43
1953	10	30	1	1	6	2	0	15	65
1933	26	32	4	5	7	3	3	8	88
1902-3	52	26	0	2	15	1	0	1	97

1933 items included many "remarks" of less than a page, some of them near-abusive in reality; also exhibits, one of which was the unlikely one of postcards of birds from Texel.

1902-3 items included photographs, exhibits of various specimens, eggs and other show pieces, while the remarks and short notes involved mostly new records for the UK, but did include a presentation by Alexander Boyd of no less than 3 new genera and 37 new species from Fernando Po.

Some interesting comparisons show up: the reduction from 52 (brief) items on Palaearctic birds in 1902-3 to the 4 papers in 1983; the drop from the 30 items on the Afro-tropics in 1933 to the 19 papers in 1983; the 7 papers from the Neo-tropics in 1983 against the 5 in the other 3 years combined; the disappearance of papers or notes on general subjects in the past 30 years; and the reduction in actual separate items by one third per volume, due of course to the cessation of members using the dinners of the BOC at which to claim priority for new taxa and other personal achievements.

The accounts for 1982 are not yet available. They will be tabled at the Annual General Meeting and published subsequently in the *Bulletin*. Members wishing copies before the Annual General Meeting will be sent them on application to the Honorary Treasurer.

The Annual General Meeting is at 6 p.m. on Tuesday, 22 May and it is hoped that as many Members as possible will come, so that their views may be known on Meetings, the *Bulletin* and other matters of interest to them.

The seven hundred and fiftieth Meeting of the Club was held in the Senior Common Room, South Side, Imperial College, London, S.W.7, on Tuesday, 29 November 1983 at 7 p.m. The attendance was 28 Members and 20 guests.

Members present were: B. GRAY (*Chairman*), P. J. BELMAN, K. F. BETTON, Mrs DIANA BRADLEY, D. R. CALDER, Dr. R. A. CHEKE, Dr. N. J. COLLAR, P. J. CONDER, J. H. ELGOOD, A. GIBBS, D. GRIFFIN, P. HOGG, S. HOWE, J. KING, Revd. G. K. McCULLOCH, Dr. J. F. MONK, P. J. MORGAN, P. J. OLIVER, R. E. F. PEAL, Prof. A. PETTET, N. J. REDMAN, P. S. REDMAN, S. A. H. STATHAM, N. H. F. STONE, K. V. THOMPSON, M. P. WALTERS, C. E. WHEELER and Lieut.-Col. T. C. WHITE.

Guests present were: Ms. LINDA ANDERTON, Dr. SUSAN AUTGAERDEN, Miss MARGARET BARRY, Mrs. CAROL BENTLEY, L. BENTLEY, Dr. J. A. COLES, Miss VIRGINIA COX, Mrs. B. M. GIBBS, Mrs. J. GRIFFIN, Mr. and Mrs. JONATHAN KINGDON, G. P. McCULLOCH, Mrs. ISABEL McCULLOCH, B. S. MEADOWS, Dr. AMICIA MELLAND, Mrs. MARY OLIVER, Mrs. ELIZABETH PEAL, Mr. and Mrs. G. H. SEARLE and Mrs. C. E. WHEELER.

The film "Almost a Dodo", about the Shoebill *Balaeniceps rex* in the Bangweulu Swamp, Zambia was shown by kind permission of Survival Anglia Ltd. This was followed by an address by Mr. Jonathan Kingdon on the Shoebill, in which he spoke about his study of this bird in the swamps of the sudd region of the southern Sudan. Among much information about it, he explained that the primary reason for the shape of its bill seemed to be the need to cool its eggs by pouring water over them. The excellent Meeting closed at 10.35 p.m.

The seven hundred and fifty-first Meeting of the Club was held in the Senior Common Room, South Side, Imperial College, London, S.W.7 on Tuesday, 10 January 1984 at 6.45 p.m. The attendance was 23 Members and 10 guests.

Members present were: B. GRAY (*Chairman*). P. J. BELMAN, K. F. BETTON, Dr. G. BEVEN, D. BISHOP, Mrs. DIANA BRADLEY, D. R. CALDER, R. D. CHANCELLOR, Dr. N. J. COLLAR, G. S. COWLES, J. H. ELGOOD, Sir HUGH ELLIOTT, A. GIBBS, Revd. T. W. GLADWIN, D. GRIFFIN, P. HOGG, Dr. A. G. KNOX, Revd. G. K. McCULLOCH, Dr. J. F. MONK, R. E. F. PEAL, N. J. REDMAN, S. A. H. STATHAM and N. H. F. STONE.

Guests present were: P. W. ATKINSON, M. S. BARLOW, Mrs. SUZANNE BEVEN, Dr. W. R. P. BOURNE, L. CLARK, Lady ELLIOTT, Miss JEAN INGLIS, Mrs. ISABEL McCULLOCH, Mrs. ELIZABETH PEAL and M. K. SWALES.

After a warm introduction by Sir Hugh Elliott, Mr. Swales' lecture took the form of a fascinating, well illustrated description of the main ornithological features of the recent 5-month highly successful Denstone Expedition to Inaccessible Island, Tristan da Cunha group. After describing the difficulies encountered in setting up a Base on Inaccessible Island, he described the various habitats found and the typical avifauna associated with each, particularly of the 4 species of landbirds and 3 species of albatross (Sooty, Wandering and Yellow-nosed *Phoebetria fusca Diomedea exulans* and *D. chlororhynchos*). Various ornithological studies were undertaken by Expedition members, including detailed studies of each of the landbird species, approximate censusing of nesting seabirds, ringing and parasite collection.

All the landbird species were reported to have viable populations with the possible exception of the Wilkins' Bunting *Nesospiza wilkinsis*, a highly specialised feeder confined to the *Phylica* forest and estimated at only c. 30 pairs. It was pointed out that the Expedition's discoveries probably posed more questions than they answered. One such discovery was that the Tristan Bunting *Nesospiza acunhae* occurred in no fewer than 3 plumage forms, 2 of them geographically separated. The Inaccessible Island Rail *Atlantisia rogersi* was a genuine bird of paradox, living almost underground and occupying the niche of a mouse (of which there are fortunately none present on the Island); it was preyed upon by the Tristan Thrush *Nesocichla eremita*. Certain of the seabird species, especially the Great Shearwater *Puffinus gravis* were found to have increased greatly in numbers since previous reports and this appeared to be promoting the spread of *Spartina* tussock through nitrogen enrichment.

Over 3000 birds of 16 species were ringed. The first recovery, that of a Great Shearwater, had occurred off Newfoundland the following July. Brief reference was made to the arrival of vagrants on the Island.

During the following discussion, Mr. Swales drew attention to the fact that Inaccessible Island is now a declared Nature Conservation Area, but that the Denstone Expedition had now established a facility for further research on the Island.

A new subspecies of the African Reed Warbler *Acrocephalus baeticatus* from Senegal

by P. R Colston and G. J. Morel

Received 6 July 1983

At Lake Guiers near Richard-Toll, Senegal, an isolated population of *Acrocephalus baeticatus* inhabits *Typha* beds exclusively, and is evidently numerous (Morel & Roux 1962, Fry *et al.* 1974). In 1960 GJM and F. Roux had collected specimens of this Reed Warbler, as they suspected that this isolated population could be racially distinct. However, the plumage of these first specimens was not fresh enough so that J. D. Macdonald's conclusion was only provisional (Morel & Roux 1962). Subsequently Fry *et al.* (1974) remarked that of 8 June-July skins examined in the Paris Museum, the plumages of 7 were so abraided that they appeared much greyer-brown than any other *A. baeticatus* except *hallae*. The eighth, a male dated 25 June 1964, was relatively unworn and extremely similar to March-April *hopsoni* at Lake Chad. However, they thought it unwise to assign the Senegal series to *hopsoni* at that stage, because of their isolation 3200 km west of Lake Chad.

In order to establish the identity of this isolated population, G.J.M. collected one specimen in May 1981 and 10 specimens in June 1982 and forwarded them to the British Museum (Natural History) (BMNH) for appraisal. P.R.C., who examined the series, confirmed that the birds were decidedly greyer-brown above when compared with the type of *hopsoni;* but they were in a slightly worn plumage, so that it was still necessary to obtain a series in fresh plumage. Subsequently G.J.M. collected a male in January 1983 and in March 1983 a further 2 males and 5 females, all in fresh plumage. Comparison with 6 specimens of *hopsoni,* including the type from Malamfatori, Lake Chad, shows the Senegal birds collected in January and March to be more greyish-brown above, less rufous on the rump and upper tail-coverts with the rectricies and remiges more blackish-brown. The Senegal birds are also darker than any of the foregoing races found in Africa, *baeticatus, hallae, cinnamomeus,* or *nyong,* and represent a distinct form, for which we provide the name

Acrocephalus baeticatus guiersi subsp. nov.

Holotype. Adult ♂; Lake Guiers, near Richard-Toll, Senegal, 16°25'N, 15°42'W, 19 January 1983. Collected by Dr. G. J. Morel, collectors number 18–2679. Lodged in the British Museum (Natural History), Tring, BM. No. 1983–4–1.

Description. When compared with the type of *hopsoni,* the Lake Guiers specimen is duller brown above with a slight greyish cast to the head and nape, lacking any warm rufous tones to the back, rump and upper tail-coverts. The tail feathers are also darker blackish-brown with the tips edged pale dusky, whereas *hopsoni* has a paler brown tail with distinct whitish tips to at least 3 pairs of outer tail feathers. The flight feathers are also more blackish-brown, edged paler brown. The under parts are similar to *hopsoni.* The throat is white and there is a creamy suffusion to the sides of the breast, with the flanks and under tail-coverts darker buff.

Colour of soft parts at time of collecting. Iris clear brown, legs and feet brown, bill dark brown, paler below.

Measurements of type. Wing (flattened) 60 mm, tail 52 mm, culmen from base of skull 17 mm, tarsus 22 mm, weight 8 gms at time of collecting.

Other specimens and remarks. The birds breed at Lake Guiers in May/June, and specimens collected at this time show some degree of wear to their plumage and are decidedly greyish-brown and much whiter below than freshly plumaged birds found earlier from January until March-April.

A. baeticatus has also been recorded in The Gambia (5 nests with eggs in July—Cawkell & Moreau 1963; its status there is uncertain, but it probably still occurs and is overlooked (Gore 1981). Farther south, in southern Senegal, one specimen of this Reed Warbler was collected by Van Den

Table 1

Measurements of *Acrocephalus baeticatus guiersi* and *A. b. hopsoni* (o=unsexed; mean given in brackets).

	A. b. guiersi			*A. b. hopsoni*		
	No. of specimens (20) 10 ♂♂, 10 ♀♀			No. of specimens (6) 3 ♂♂, 1 ♀, 2 o		
Wing	♂♂	56–60	(57.9)	♂♂	56–59	(57.7)
	♀♀	55–59	(57)	♀	56	
				o (ad)	56, 56.5	(56.25)
Tail	♂♂	47–52	(49.9)	♂♂	49–52	(50.3)
	♀♀	47–50	(48.2)	♀	47	
				o (ad)	50, 52	(51)
Bill	♂♂	16–17	(16.7)	♂♂	16	(16)
	♀♀	16–18	(16.8)	♀	16.5	
				o (ad)	16, 16.5	(16.25)
Tarsus	♂♂	21–23	(22.2)	♂♂	22–23	(22.3)
	♀♀	21–23	(21.9)	♀	22	
				o (ad)	21, 22	(21.5)
Weight	♂♂	7–13	(8)	♂♂	6.3–8.6	(7.6)
	♀♀	7–10	(7.8)	♀	—	
				o (ad)	—	

Elzen & Wolters (1978). Their unique skin was forwarded to the Smithsonian Institution for appraisal, apparently without final result. East of Senegal, this species does not appear in the recent "Liste commentée des oiseaux du Mali" (Lamarche 1981) and the present authors do not know of any other record between southern Senegal and Nigeria and Chad. It is thus impossible for the moment to enlarge upon the actual isolation of this species in Senegal. Its absence from Mali is fully understandable; Lamarche never recorded it, though he listed 6 species of *Acrocephalus* and the extent of reed-beds between Senegal and Mali is all but unknown, although a complete blank area seems unlikely.

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Two hummingbird species, one a new subspecies, new to Bolivia

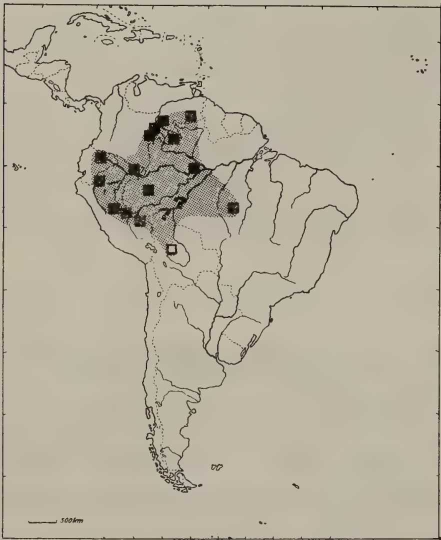
by Karl-L. Schuchmann

Received 8 June 1983

Recent field work in South America by Cardiff & Remsen (1981), Remsen & Ridgely (1980) and Parker *et al.* (1980) led to the discovery of 40 bird species additional to the avifauna of Bolivia. Several of these new records were not surprising and fitted neatly into the general distributional pattern of the species. Further studies, like those recently carried out by Fitzpatrick & Willard (1982) and Hilty & Brown (1983), will undoubtedly reveal additional range expansions of Andean and Amazonian bird species, and this is in fact the case for at least one of 2 hummingbird species which the Zoologisches Forschungsinstitut und Museum A. Koenig (ZFMK) in Bonn, FRG, received from Charles Cordier, Cochabamba, Bolivia. Both trochilids, an adult ♀ Gould's Jewelfront *Polyplancta aurescens* and an adult ♂ Purple-backed Thornbill *Ramphomicron microrhynchum,* were formerly unknown to Bolivia, the latter revealing that the Purple-backed Thornbill from Bolivia must be considered a distinct subspecies.

Polyplancta aurescens

C. Cordier collected a ♀ (ZFMK # 8381) at Agrigento (elevation 400 m) close to Villa Tunari, Rio San Mathias, Bolivia, during the first week of February 1981. The ovaries were well developed, and presumably *P. aurescens* breeds in that particular tropical lowland forest section of Bolivia.



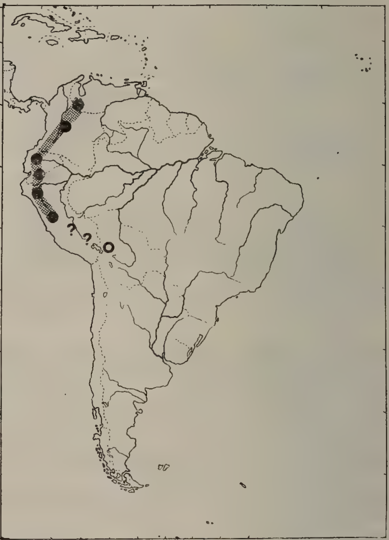


Fig. 1. Geographical distribution of Gould's Jewelfront *Polyplancta aurescens* in Amazonia. Closed symbols signify known records; open symbol signifies the recently documented record in Bolivia. The species is not known from the Rio Madeira. (Left)

Fig. 2. Geographical distribution of the Purple-backed Thornbill *Ramphomicron microrhynchum* in the Andes of South America. Closed symbols signifies documented records; open symbol signifies the type locality of the new subspecies *R. m. bolivianum*. (Right)

This hummingbird species is distributed throughout Amazonia (see Fig. 1), from the south of Venezuela (M. de Schauensee & Phelps 1978) southwestwards to Colombia (Fitzpatrick & Willard 1982), including the lowland forest of eastern Ecuador (Pearson 1977) and further west to Central Brazil (Sick 1960). Surprisingly *P. aurescens* has not been recorded from the Rio Madeira and its tributaries. The record from Bolivia is the southernmost locality documented for this monotypic species and may well represent its southern distribution limit.

Ramphomicron microrhynchum bolivianum subsp. nov.

Type. Adult ♂ (ZFMK # 81367) from Cocapata (elevation 3300 m), North of Cochabamba, Bolivia. Collected by Charles Cordier in July 1980.

Diagnosis. *R. m. bolivianum* differs most strikingly from all other subspecies of *R. microrhynchum* by the metallic "spectrum violet" (colour 72—Smithe 1975) of its upperparts. The underparts, especially the yellowish green gorget, are similar to that of *R. m. albiventris* from Peru, judged on the detailed description of the latter by Carriker (1935), since specimens of *R. m. albiventris* were unfortunately not at hand. The belly of *R. m. bolivianum* is darker green than in either *R. m. andicolum* or *R. m. microrhynchum*. The undertail coverts are greyish with blackish centres whereas they are white with purplish black in *P. m. albiventris* (Carriker 1935) and tawny ochreceous with coppery coloured centres in both *R. m. andicolum* and *R. m. microrhynchum*. The deeply forked tail of *R. m. bolivianum* is dark blue, whereas it is dark with a coppery sheen in all other subspecies.

Measurements of the type. Bill=7 mm. Wing (chord)=46 mm. Rectrice No. 1=25 mm, No. 5=40 mm. These mensural characteristics are within the range of all other races of *R. microrhynchum*.

Distribution. As indicated in Fig. 2, *R. microrhynchum* is distributed throughout the Andes from Venezuela (Merida—M. de Schauensee & Phelps 1978) south to Peru (Huacapistana, Dept. Junin—Carriker 1935), with this disjunct occurrence in Cocapata, Bolivia. This polytypic hummingbird species is rare everywhere within its geographical range and therefore might well have been overlooked by collectors and field researchers in the Andes of southern Peru. Whether *R. m. bolivianum*, therefore, constitutes an isolated population in Bolivia awaits further field work.

Specimens examined. *R. m. andicolum* (Simon 1921), 2 juv. ♂ (ZFMK # 9326, # 9327); 2 ad. ♂ (ZFMK # 9324, # 9325), Carpintero, Merida, Venezuela. *R. m. microrhynchum* (Boissoneau 1839), 1 ad. ♂ (ZFMK # 10308), "Colombia"; 1 ad. ♂ (ZFMK # 9308), Paramos de Bogota, Colombia; 2 ad. ♂ (ZFMK # 3381, # 9305), Bogota, Colombia; 2 ad. ♂ (ZFMK # 9306, # 9307), Las Palmas, near Bogota, Colombia; 2 ad. ♂ (ZFMK # 9309, # 9310), St. Domingo, Ecuador; 1 ad. ♂ (ZFMK # 9311), Paylon, Ecuador; 2 ad. ♂ (ZFMK # 9313, # 9314), Cutervo, Peru.

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The nest and eggs of the Black-backed Barbet *Lybius minor*

by C. Carter, D. Shepherd & R. Shepherd

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Snow (1978), Short (1982) and others treat *Lybius minor* and *L. macclounii* as conspecific. The nest and eggs of *minor* are stated by Mackworth-Praed & Grant (1970(1):535) to be undescribed, and also the eggs of *macclounii,* but state that the latter is reported as nesting in rotten stumps and in the lower parts of nests of tree-building ants.

Actual nesting records are very few. A nest of *L.*(*minor*) *macclounii* was found by C.C. near Mbala, Zambia (8°50′S, 31°21′E) on 25 October 1965. It was photographed and reported on by Dawson (1967). It contained young and was in an arboreal ant's nest. S. G. Madge watched an adult bird enter a hole in a dead stump near Ndola, Zambia (12°58′S, 28°39′E) on 29 October 1970. A young bird accompanying 2 adults was observed by C.C. near Ndola on 24 December 1977. This note describes both nest and eggs of *macclounii,* apparently for the first time.

The form *macclounii* is fairly common around Ndola, being most readily observed at the edge of riparian forest and evergreen thickets, including small patches of such vegetation on anthills. It is uncommon away from such habitats. This preference, which applies throughout it's range in Zambia (Benson *et al.* 1971) and the generally inaccessible nest sites chosen by barbets, doubtless provide reasons for the paucity of breeding records.

On 14 May 1978 it was noticed that 2 Black-backed Barbets were roosting in a hole in an arboreal ant's nest which had been built against the main trunk of a *Syzgium guineense* tree growing close to the main entrance of a house, between and underneath 2 of the bottom branches, 7½m above the ground. There were very few other native trees in the vicinity, which is one of the main residential areas in Ndola, whilst the nearest typical habitat for the species was 800 m distant. The area was not without a fair amount of human activity and the disturbed nature of the chosen position suggests there were few suitable nest sites in the nearby preferred habitat, though this was not verifiable.

For the next 4 months the barbets continued to roost in the hole, but by 30 September we considered that breeding and egg laying had taken place and decided to saw through a cross-section of the entrance tunnel and chamber. There were 4 eggs lying on a bare hard surface; apart from a few particles of dust there was no lining to the nest. The tunnel was on the underside and ran vertically upwards into the ant's nest for 10 cm, before broadening out onto one side into a roughly spherical chamber, 10 cm in diameter, clean and smooth sided with a shallow concave floor.

The 4 eggs were examined by J. F. R. Colebrook-Robjent of Choma, Zambia, who has kindly provided the following descriptions:—

"C/4. Broad ovals, white, little to no gloss. 2 with small protuberances, 3 with slight longitudinal grooves. 2 had very small embryos, 2 no trace. The eggs measured (mm) and weighed (g) (after refrigeration): 24.7 x 17.8 (damaged), 23.1 x 17.8 (3.5 g), 22.8 x 18.1 (3.6 g), 22.6 x 18.3 (3.8 g)."

Eleven days after the nest had been exposed, on 11 October, a Black-backed Barbet was seen to be excavating a second hole some 25cm to the right of the original. The tunnel had already progressed so far that only the tip of the bird's tail protruded whilst it worked. By 1 December both adults were continually visiting the nest throughout the day carrying food. Further evidence of a successful re-lay was the sighting of 2 adults and 2 fledglings together on nearby branches on 17 December. The fledglings had no red on the forehead, no salmon pink on the underparts, whilst white markings on the upperparts were indistinct.

Acknowledgements. We are grateful to Maj. Colebrook-Robjent for describing the eggs and commenting on drafts of this paper. We also thank Mr. G. Grout of the Forestry Dept., Ndola for identifying the nest tree.

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Migrant species new to Seychelles

by N. J. Phillips

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From September 1981 until February 1983 I was the Scientific Administrator of the I.C.B.P. reserve of Cousin Island, Seychelles; I saw a number of migrant birds, on Cousin and elsewhere, including 8 species not previously identified in the Seychelles Republic.

GREAT CORMORANT *Phalacrocorax carbo*. One circling over Cousin and nearby Cousine, 13 January 1983, last seen flying west towards Mahe island. The bird was in immature plumage and therefore not assignable to subspecies. There are no previous records for the Malagasy Region, but "has been recorded around the Gulf of Aden" (Watson *et al.* 1963).

SQUACCO HERON *Ardeola ralloides*. Single immatures: Cousin, 4 and 5 March 1982; Ille au Vaches (Bird Island) 7 November 1982. Previously only *A. idae,* which has a restricted breeding area in the Malagasy Region, has been identified in Seychelles, but *A. ralloides,* which breeds in Madagascar as well as much of sub-Saharan Africa and the southern Palaearctic, seems theoretically just as likely to occur.

SPOTTED CRAKE *Porzana porzana*. Immature, Cousin, 12 and 13 November 1982. This easily-overlooked species could well occur more frequently than the absence of previous records suggests.

SANDWICH TERN *Sterna sandvicensis*. Single adult, Cousin, 20 December 1982. In winter, migrates "as far north as Inhambane, Mozambique" (McLachlan & Liversidge 1978) and also occurs in the eastern Mediterranean. This bird could have arrived from either north or south.

JACOBIN CUCKOO *Clamator jacobinus*. Immature, Bird Island, 21 March 1982. (Colour transparencies in my collection.) "Some Asian populations probably winter in Africa . . . but irrefutable proof of migration from India to Africa appears to be lacking" (Snow 1978). The Bird Island record, while not providing irrefutable proof, nevertheless supports the suggestion that such migration may take place.

REDSTART *Phoenicurus phoenicurus*. Cousin, 22 October–9 November 1981. Trapped 22 October, weight 12.2 grams; retrapped 9 November, weight 21.0 grams with fat visible on the breast. Sexed as female using the criteria of Svensson (1975). (Colour transparency in my collection.) This appears to be the first record from south of the Equator, apart from the records from South West Africa (Sauer & Sauer 1960), which Moreau (1972) set aside as "difficult".

WHINCHAT *Saxicola rubetra*. Single, Bird Island, 5–7 November 1982. No previous records exist for the Malagasy Region.

SEDGE WARBLER *Acrocephalus schoenobaenus*. Single, Cousin, 10–22 November 1982. It fed in dense *Achyranthes aspera* beds and was difficult to see unless it was flushed. Quite possibly previously overlooked.

In addition, records of 2 species are the first for the Seychelles Islands *sensu stricto*, i.e. the northern or "granitic" group.

PEREGRINE *Falco peregrinus*. One, probably female, Cousin, 10–24 November 1982. *F. p. calidus* has been identified on Aldabra (Frith 1974), and occasional sightings of large falcons on Cousin over the last 10 years could well have involved *F. peregrinus*.

WOOD WARBLER *Phylloscopus sibilatrix*. One, Cousin, 15 November 1981. Has previously been identified on Aldabra (Frith 1974) and in the Amirantes group (Benson 1972).

Acknowledgements. My thanks to T. R. Bresson (Cousin) for finding *Porzana porzana*. and to V. E. Wood for helping with identifications.

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The relationships of the Madagascan genus *Dromaeocercus* (Sylviidae)

by S. A. Parker

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The genus *Dromaeocercus* Sharpe, 1877, as construed since 1879, consists of 2 species of sylviid warblers, *D. brunneus* Sharpe, 1877 and *D. seebohmi* Sharpe, 1879. Their association, now traditional, may be attributed to their shared characters of long, decomposed rectrices and restriction to Madagascar. In the present article I suggest that these 2 characters have been wrongly emphasized, and that the 2 species in fact belong each to a separate tribe of the Sylviidae, *brunneus* to the Bradypterini and *seebohmi* to the Megalurini. The details of distribution and habits given below are drawn from Sharpe (1883), Milne-Edwards & Grandidier (1883), Delacour (1932a, b), Rand (1936), Lavauden (1937), van Someren (1947), Salvan (1972), Milon *et al.* (1973) and Benson *et al.* (1977). The present article itself is a contribution to a long-term study of the taxonomy of the Sylviidae (Parker in prep.).

D. brunneus, the Brown Emu-tail, is a small, furtive bird of central eastern Madagascar (up to at least 800 m), where it is locally common. It affects the damp substage of heavy forest, feeding on small insects caught near the ground. It is predominantly dark brown above and dull orange-brown below, darker on flanks and crissum, with paler throat and eyebrow; immatures are more rufous below than adults. Its long, strongly graduated tail of ten highly decomposed rectrices constitutes about half its total length (Plate 1). The wings are soft and rounded, with the tenth (outermost) primary very well developed. The bill is fine and the nostrils operculate. The tarsi and toes are relatively long. The plumage is soft and dense. Calls include a *tac-tac-tacatac-tacatac* followed by *tia-tia tic-tic* (Milon *et al.*, possibly the "little rattling call" reported by Rand 1936: 451). Nothing has been reported of its nesting habits.

D. seebohmi, the Grey Emu-tail, is similar to *brunneus* in size and shape, but differs in its coloration, shorter legs and toes, lower tarsus/wing ratio, voice and habitat. It is found in the high country of the central massifs of Madagascar, mostly between 1800 m and 2600 m (once 900 m), where it affects herbage and bushes in small grassy swamps, along streams and at the edges of forest-remnants and also in the adjoining heath and grassland. Like *brunneus* it feeds on small insects. Its upperparts are light grey-brown, the feathers of the crown, nape, back and wings with darker centres (Plate 2), its underparts ashy-white, deepening to olive on sides and crissum, with fine dark streaks on throat and breast. Juveniles (nestlings) are washed yellow below. Like *brunneus* it is a furtive species best located by its voice. Its vocal repertoire was given by Rand as: song a series of rather clear whistles, and a loud chatter repeated continually when disturbed; one bird that had been singing began to chatter, stopped, gave a "curious little rattle" and resumed its singing. van Someren reported low churrings and a sharp *chit* given at the nest. Milon *et al.* gave no precise description of voice, but observed that, though the bird hid itself constantly, it could still be easily located by its strong and constant chatter. Its flight, never more than a few yards at a time, appears heavy and laboured, the long tail drooping; Rand found that when disturbed it preferred to escape on foot, creeping away through the grass. Two of its nests have been reported (van Someren 1947, Benson *et al.* 1977): both were deep cups of coarse grass placed in tussocks of marsh grass; one was noted as having a lining of finer grass and possessing an approach tunnel of some 3.6 m through the tussock. Both nests contained 2 young.

In erecting *Dromaeocercus* for *brunneus,* Sharpe (1877) compared the species to *Phlexis layardi* (=*Bradypterus victorini*) and the Australian emu-wren *Stipiturus malachurus,* both of them forms with decomposed tails. Subsequently, and following the description of *D. seebohmi,* Sharpe (1883) placed *Dromaeocercus, Stipiturus* and *Phlexis* in the group Bradypteri of his subfamily Timeliinae, the first 2 together between *Sphenoeacus* and *Psamathia,* and *Phlexis* several genera further on. Sharpe's Bradypteri or "aberrant Reed-Warblers" comprised 19 genera, of which 15 are still retained in the Sylviidae, where they are currently distributed among 4 tribes. Of the remaining 4, all Australian, *Sphenura* (=*Dasyornis*) and *Origma* are now placed in the Acanthizidae (Schodde 1975, Sibley & Ahlquist 1982) and *Amytis* (=*Amytornis*) and *Stipiturus* in the Maluridae (Harrison 1969, Sibley & Ahlquist 1982). Sharpe's *Sphenoeacus* consisted of forms now constituting the African *Sphenoeacus afer* (Megalurini) and the New Zealand *Bowdleria punctata,* a species of unresolved relationships associated by Delacour (1942: 513) with *Megalurus* and *Sphenoeacus,* but which in fact shows equally impressive external resemblances to the Australian species *Calamanthus fuliginosus* (Acanthizidae). *Psamathia,* of Micronesia, appears very closely related to the bradypterine genus *Cettia* (Delacour 1942, Baker 1951: 251, Parker in prep.).

Sclater (1930: 574), possibly in resignation, placed *Dromaeocercus* at the very end of the African Sylviidae, immediately behind the Mascarene genus *Bebrornis* (which latter is probably congeneric with *Acrocephalus*—see Hall & Moreau 1970:157). No other modern workers, with the exception of Neumann and of Delacour (see below), appear to have passed any comment or judgement on the taxonomic position of *Dromaeocercus.*

The genus *Dromaeocercus* has never been satisfactorily diagnosed. Within his Bradypteri, Sharpe (1883: 93) keyed it out in 3 steps to a couplet including *Sphenoeacus* (=modern *Sphenoeacus*+*Bowdleria,* see above): "a. With ten tail-feathers.

a′. Tail-feathers stiffened with spiny shafts and loose webs, the latter lax and separate.

a″. Tail about equal in length to the body of the bird; no perceptible rictal bristles."

From "*Sphenoeacus*" he distinguished *Dromaeocercus* by the latter's more slender bill. *Stipiturus* (now in the Maluridae) he distinguished from "*Sphenoeacus*" and *Dromaeocercus* by its tail being much longer than its body (this was before the discovery of *S. ruficeps*), and its rictal bristles very strong. What seem to have prompted subsequent authors to maintain Sharpe's delimitation of *Dromaeocercus* (and arguably the strongest influences upon Sharpe himself) are the similar long, decomposed tails of the 2 species and their geographical restriction to Madagascar (Traylor *in litt.* 8 Dec. 1982). Indeed, in the absence of these 2 characters, it seems highly improbable that *brunneus* and *seebohmi* would ever have been thought of as related, let alone made the occupants of a single genus.

Concerning the endemicity of both *brunneus* and *seebohmi* to Madagascar, I regard this point as inadmissible to the taxonomic argument. To my mind, biogeographical conclusions must be drawn from taxonomic conclusions, not *vice versa.* To reverse this order would invalidate the resulting taxonomy as a basis for further biogeographical studies.

As for the significance of the long, decomposed tailfeathers, this character has arisen independently in such unrelated genera as *Sylviorthorhynchus* (Furnariidae) and *Stipiturus* (Maluridae), and so cannot be considered as invariably indicating close relationship. There are indications that decomposed rectrices may in some instances be an adaptation to wet or humid conditions. For instance, this condition is far more pronounced in the hygrophilous *Stipiturus malachurus* than in the aridicolous *S. ruficeps*. In addition, *D. brunneus* and the similar *Bradypterus barakae* (see below) have both been reported as being habitually bedraggled with moisture (Delacour 1942). As for *Sylviorthorhynchus desmursii,* this species "is normally a bird of the very dense underbrush of humid temperate forest, especially where favoured by secondary growth, and frequents as a rule virtually impenetrable thickets . . . preferably along or in the near vicinity of streams and lakes" (Vaurie 1980: 55).

If, therefore, the endemicity of *D. brunneus* and *D. seebohmi* to Madagascar is inadmissible to the taxonic argument (which it is), and if the possession by these 2 species of long, decomposed rectrices is attributable to convergence (possibly as an adaptation to wet or humid environments), then the question of the species' relationships to each other requires to be re-examined. Were it not for their unusual tails, then, in my opinion, from the beginning *brunneus* would have been placed in *Bradypterus* and *seebohmi* in or near *Megalurus*.

Neumann (1920) proposed for *Bradypterus barakae* Sharpe the new genus *Sathrocercus*. Of it he wrote: "In every respect a connecting link between the genera *Bradypterus* Sw. and *Dromaeocercus* Sharpe. In coloration resembles *Dromaeocercus* [obviously he meant only *D. brunneus*] more than any species of *Bradypterus*. Tailfeathers not of the normal form, but appearing very finely worn to shreds, abraded, approximately halfway between a normal sylviid tail and the hairfeather-tail of *Dromaeocercus* . . . Perhaps *Bradypterus lopezi* Alex. also belongs here.".

Delacour (1942) also noted the similarity between *D. brunneus* and *B. barakae,* but retained the latter in *Bradypterus*. Mackworth-Praed & Grant (1955, 1963) recognized *Sathrocercus,* including in it not only *barakae* and *lopezi* but also *mariae* and *cinnamomeus,* while retaining the fuller-tailed forms such as *barratti* and *babaecala* in *Bradypterus*. Sclater (1930) and Hall & Moreau (1970), however, retained the *Sathrocercus*-group in *Bradypterus,* the latter authors moreover regarding all its forms as conspecific with *B. barratti*.

Whatever the species-boundaries within this group are finally determined to be, there exists in the character of the tailfeathers a morphocline. As noted by Delacour (1942) as well as Neumann (1920), *Dromaeocercus brunneus* very much resembles *B. barakae,* from which it differs in its longer, more decomposed rectrices. Yet the tail of *barakae* is itself intermediate in these respects between those of *brunneus* and *lopezi*; in fact, the tail of *brunneus* can be envisaged as the end-form of a morphocline extending from the full-tailed species of *Bradypterus* (*sensu stricto*) through the "*Sathrocercus*"-group (Plate 1). *Brunneus* is also extremely similar in coloration and general appearance to forms of the "*Sathrocercus*"-group. With regard to voice, it is true that both *brunneus* and *seebohmi* are reported as having chattering calls, but the only person to have explicitly likened their calls to each other (Rand 1936) had never personally heard *brunneus,* and was possibly going by native reports. In fact, the call of *brunneus* reported by Milon *et al.* compares very favourably in its transliteration to the rattling call described in Mackworth-Praed & Grant (1955: 376) for *Bradypterus mariae,* "*tac-tac-tacatac-tacatac, tia-tia tic-tic*" and "*tiku-tiku-tiku-tic*" respectively. In addition, the tarsus/wing ratio of *brunneus* is relatively high as in the *Sathrocercus*-group, whereas that of *seebohmi* is relatively low (Table 1, and below), though this may signify no more than that the relatively longer-legged *brunneus* is more terrestrial than *seebohmi* (cf. Galbraith & Parker 1969, Vaurie 1953, and Gaston 1974). Be that as it may, the sum of the above considerations leaves little impediment to the placing of *brunneus* in the genus *Bradypterus,* a course I here recommend.

TABLE 1

Tarsus/wing ratios of *Bradypterus* spp., *Amphilais seebohmi* and *Megalurus* spp.; sample sizes given in parentheses.

Bradypterus		*Amphilais*	
('*Dromaeocercus*') *brunneus*	0.388 – 0.468 (6)	('*Dromaeocercus*') *seebohmi*	0.347 – 0.388 (6)
B. (*Sathrocercus*) *barakae*	0.383 – 0.418 (5)	*Megalurus gramineus*	0.354 – 0.380 (6)
B. (*S.*) *lopezi*	0.393 – 0.439 (5)	*M. pryeri*	0.340 – 0.373 (6)
B. (*S.*) *cinnamomeus*	0.373 – 0.432 (6)	*M. timoriensis*	0.363 – 0.403 (5)
B. (*Bradypterus*) *barratti*	0.323 – 0.377 (6)		
B. (*B.*) *babaecala*	0.383 – 0.439 (6)		

My belief that *brunneus* should be regarded as a species of *Bradypterus* in no way extends, however, to its alleged congener *seebohmi.* As Delacour (1942) pointed out, *seebohmi* has, unlike any of the Bradypterini, streaked upperparts (Plate 2). "It does not seem possible, however," he continued, "to separate generically the two species of *Dromaecercus* [sic] . . . which provides, therefore, a connection between the plain-backed *Cettia–Bradypterus* and the streaked-backed . . . *Megalurus–Bowdleria* group . . .". It could be argued that dorsal streaking is commonplace among swamp-dwelling forms, and therefore that this difference between *brunneus* and *seebohmi* is insufficient to separate them generically, let alone tribally. But commonplace as it may be, the character is not universal among swamp-living birds, and I regard it as significant that in particular it is absent from the swamp-dwelling bradypterines *B. babaecala, B. grandis* and *B. carpalis.* In this particular case, I place greater taxonomic significance upon the presence or absence of dorsal streaking than on the similarity between the tail-feathers, and therefore regard the streaked dorsum of *seebohmi* as justifying the exclusion of this species from the Bradypterini. It may be of interest to note here that Benson & Irwin (1975) similarly used a single character-state (the presence or absence of a pale or contrasting patch on the underside of the primaries) as initial evidence for the exclusion from the Pycnonotidae or "*Phyllastrephus*" (now *Crossleyia*) *xanthophrys* and '*P.*' (now *Modulatrix*) *orostruthus.*

As noted above, were it not for its unusual tail, *seebohmi* would probably early have been placed in or near *Megalurus.* In its appearance it shows strong resemblances to certain species of *Megalurus* and *Locustella* (Plate 2). The accounts of its nest, song, calls and general behaviour recall in particular those of *Megalurus gramineus,* the Little Grassbird of Australia and New Guinea. In addition, the vocal repertoire given by Rand (as heard by him) for *seebohmi* is strikingly reminiscent of that of *M. gramineus.* Moreover, the tarsus/wing ratio of *seebohmi* is relatively low as in *Megalurus*, whereas that of *brunneus* is relatively high as in the *Sathrocercus*-group (see above).

From Sharpe's linking of "*Dromaeocercus*" with "*Sphenoeacus*" (modern *Sphenoeacus* and *Bowdleria*) and *Stipiturus* in his key ("a'. Tail-feathers stiffened with spiny shafts and loose webs, the latter lax and separate"), it might be inferred that decomposition of the rectrices to the degree found in *seebohmi* was already known in the Megalurini. While Sharpe's comparison may hold for *Stipiturus malachurus* and, to a lesser extent, some specimens of *Bowdleria*, however, it is a poor and misleading one in the case of *Sphenoeacus afer*, whose rectrices, though narrow, are relatively close-webbed and not comparable to the loose webbing found in *seebohmi* or *brunneus*. In fact, amongst the Megalurini (in which I provisionally include the currently recognized genera *Locustella, Megalurus, Graminicola, Chaetornis, Laticilla, Sphenoeacus, Melocichla, Cincloramphus, Megalurulus, Schoenicola* and *Eremiornis*, but not *Achaetops, Buettikoferella* or *Rhopophilus*), no species has loose-webbed rectrices, though several, including *Megalurus palustris* and *M. gramineus*, sometimes have the webs narrowed by extreme wear. Certainly, unlike the case of *brunneus vis-à-vis Bradypterus*, no morphocline exists to link *seebohmi* to *Megalurus* or any other megalurine genus in this character.

On present evidence, I regard *seebohmi* as a member of the Megalurini, possibly closest to *Megalurus*, but in any event sufficiently distinctive to require a separate genus. The type-species of *Dromaeocercus* being *brunneus*, and no other generic name being available, I therefore propose:

Amphilais, gen. nov.

Type-species. *Dromaeocercus seebohmi* Sharpe, 1879.

Diagnosis. Resembles *Megalurus* (especially *M. gramineus*) and *Locustella* (especially *L. naevia*) (see Plate 2), differing from the former by its finer, glossier plumage and subtler, less contrasting markings, from the latter by its much shorter upper- and under-tailcoverts, rounded wing, longer tenth primary and apparent lack of grasshopper-like song, and from both by its relatively much longer, more graduated and highly decomposed tail.

Constitution. The type-species only, *Amphilais seebohmi* (Sharpe, 1879).

A. seebohmi is not the first species to have been transferred from the Bradypterini to the Megalurini. A previous example is the species now known as *Megalurus pryeri* (Delacour 1942: 513).

All species of *Locustella* being migratory, and some species of *Megalurus* being migratory or highly nomadic, the question arises whether *A. seebohmi* is an ancient Madagascan endemic or has evolved relatively recently from long-range colonists from, perhaps, Eurasia. Further studies in the taxonomy of the Megalurini may decide this question. At this juncture I consider it likely that *Amphilais* is most closely related to *Megalurus* and that it constitutes a further example of the "Indian" element of the Madagascan avifauna listed by Rand (1936: 298).

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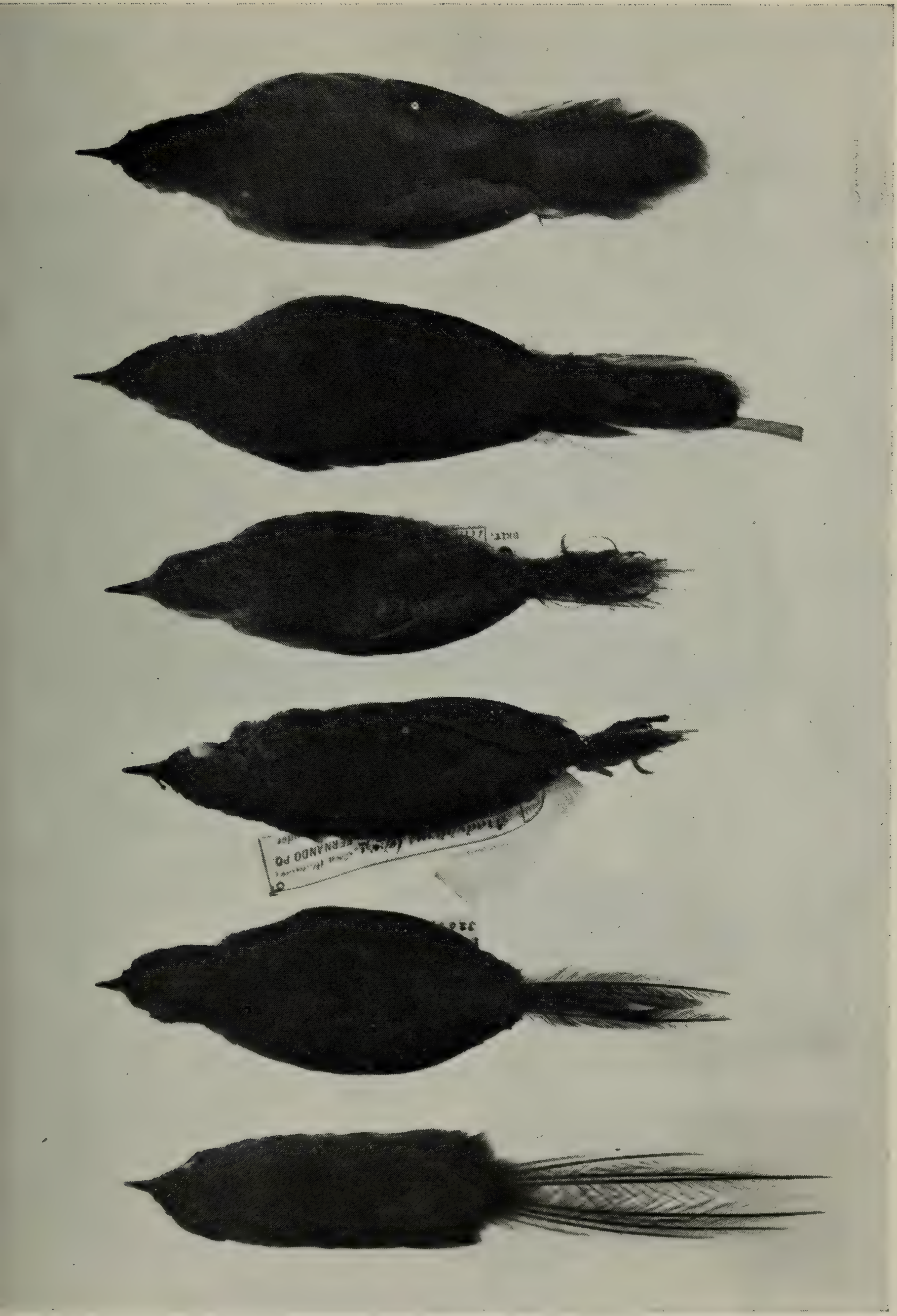

Plate 1. From top to bottom: *Bradypterus* ('*Dromaeocercus*') *brunneus*, *B. barakae*, *B. lopezi*, *B. cinnamomeus*, *B. barratti* (*cathkinensis*), *B. babaecala*, emphasising the tail traceries. (See Parker).

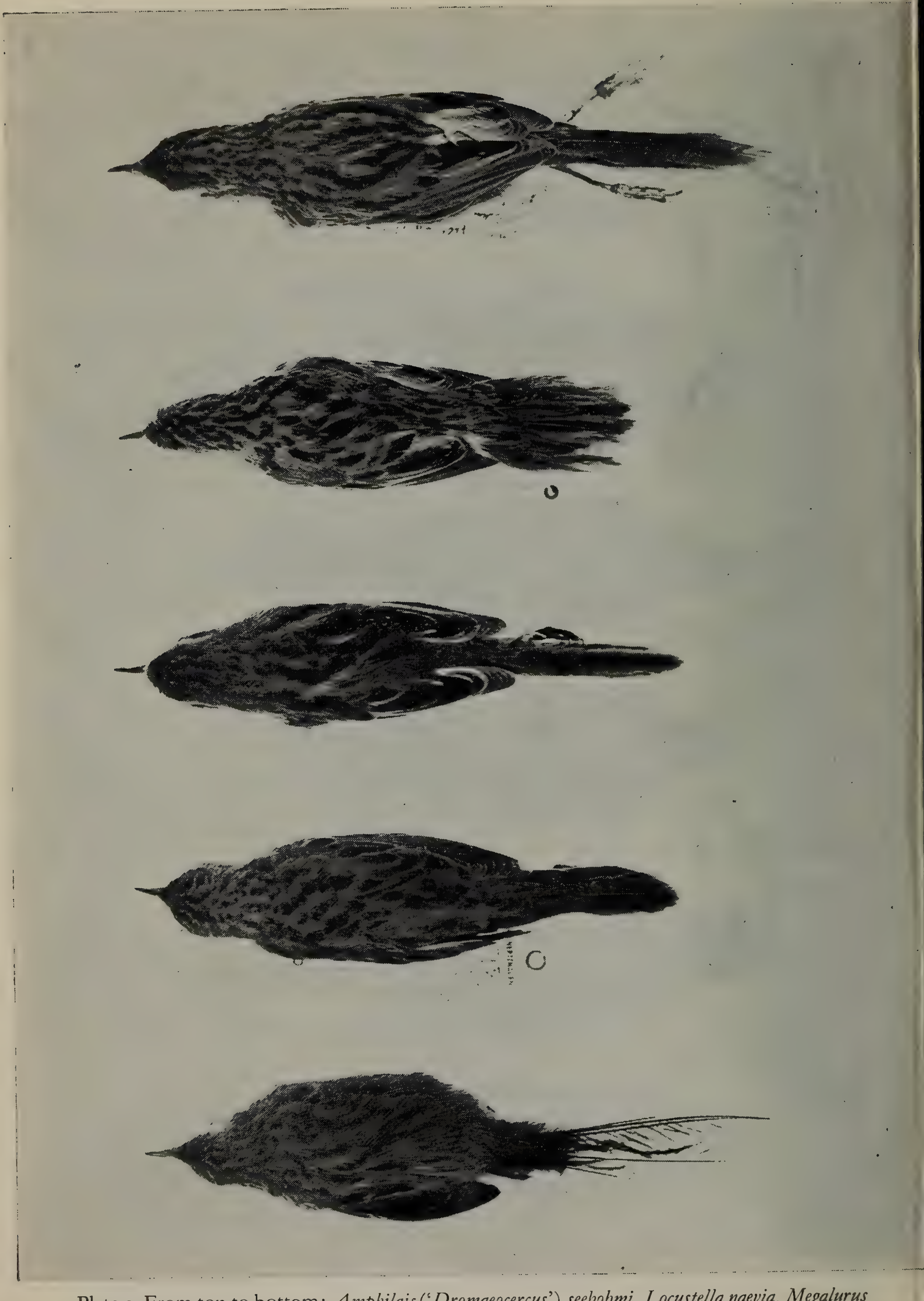

Plate 2. From top to bottom: *Amphilais* ('*Dromaeocercus*') *seebohmi*, *Locustella naevia*, *Megalurus gramineus*, *M. pryeri*, *M. timoriensis*. (See Parker).

The extinct Kangaroo Island Emu, a hitherto-unrecognized species

by Shane A. Parker

Received 14 January 1984

Dwarf emus are known to have occurred on Kangaroo Island, South Australia, and King Island in Bass Strait. The populations of both islands appear to have become extinct soon after the advent of European settlement. In the course of a study of their taxonomy and nomenclature (Parker in

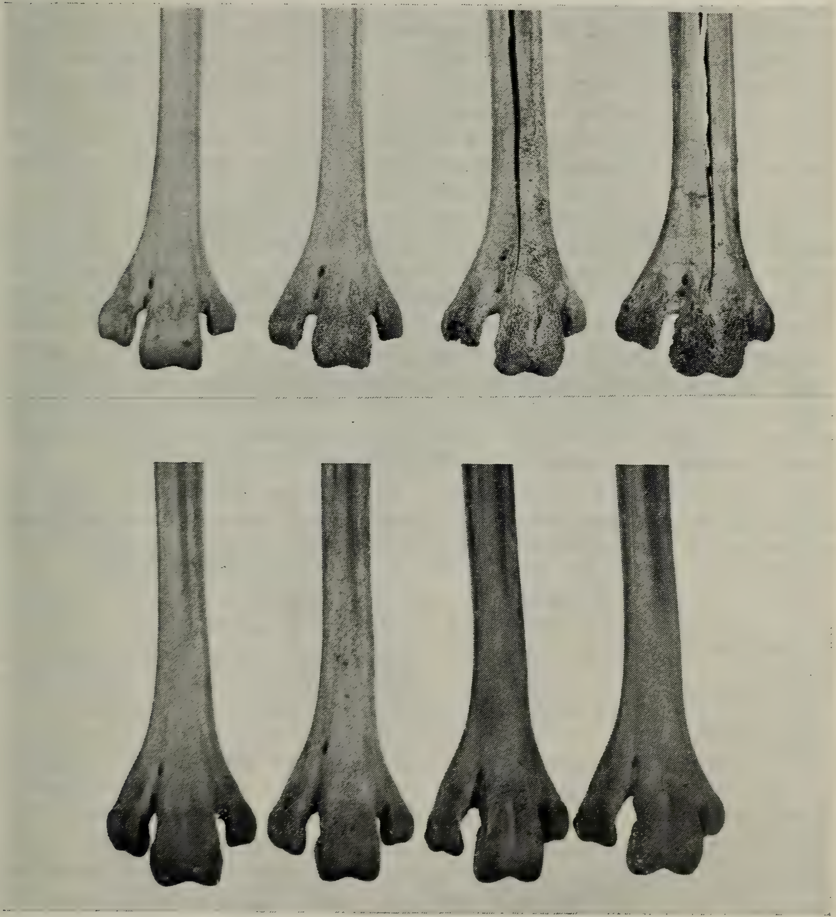

PLATE 3. Anterior faces of distal ends of tarsometatarsi of *D. ater* (top row) and *D. baudinianus* (bottom row), about 7/12 natural size. Note than in *baudinianus* the eintrtrochlear foramen is open (closed by a bridge in most specimens of *ater*), and the outer trochlea more strongly incurved and produced towards the middle trochlea.

prep.) I found that, contrary to general belief, the Kangaroo Island emu was not the same as the King Island emu, and that the 2 populations constituted 2 distinct species. Jouanin (1959) has demonstrated that all scientific names previously thought to have been based on the Kangaroo Island bird were in fact based on the King Island emu or were for some other reason inapplicable. The species from Kangaroo Island therefore requires to be named. The full study, already well advanced, will be published later; below, I name and diagnose this hitherto-unrecognized form.

Dromaius baudinianus sp. nov. Kangaroo Island Emu

Holotype. South Australian Museum (SAM) (Dept. of Ornithology) B6891b, complete adult left tarsometatarsus, from Kelly's Hill (in cave), Kangaroo Island, South Australia, collected 24 July 1926 by staff of the then Fauna and Flora Board of South Australia (listed in Morgan & Sutton 1928).

Paratypes. SAM Dept of Ornithology: all other skeletal material from Kangaroo Island listed in Morgan & Sutton (1928), *viz*. B6814–6830, 6832–6854, 6889–6896, and in addition: B15, rib, from Cape du Couedic, F. W. Giles, reg'd 21 March 1911; B11160, 4 toe-bones, near Eleanor River, 28 Jan. 1926, N. Tindale; B11754–11765, 2 crania, 5 vertebrae, 13 ribs, one coracoscapula, 3 sterna, 2 humeri, one incomplete pelvis, 2 femora, 6 tibiotarsi, 4 fibulae, 8 tarsometatarsi, one toe-bone, from Kelly's Hill caves, reg'd 1928; B24681, cranium and part of synsacrum, from Kelly's Hill caves, 17 Jan. 1956, South Australian Cave Exploration Group; B30866–30874, one cranium, 3 vertebrae, 5 ribs, one scapula, one sternum, one pelvis, 2 femora, one tibiotarsus, one tarsometatarsus, from Emu Cave near Mount Stockdale, July 1965, I. S. Davis; SAM Dept of Palaeontology: P17109–17121, 3 sterna, 5 synsacra, 2 femora, 2 tibiotarsi, one tarsometatarsus, from Emu Cave, 20 Aug. 1966, N. Pledge; P23501–23521, 16 vertebrae, 8 ribs, one coracoid, one scapula, one sternum, one humerus, 2 synsacra, 6 femora, 7 tibiotarsi, 7 tarsometatarsi, one toe-bone, from Kelly's Hill caves, no data.

Table 1. Lengths (mm) of tarsometatarsi and tibiotarsi of the extinct dwarf emus *D. ater* (King I.) and *D. baudinianus* (Kangaroo I.); for methods of measurement, see text. *For the tibiotarsi of *D. ater*. (a) represents the class surmised to be males, and (b) the class surmised to be females; both classes include the intermediate value 284.5 mm.

		Number of specimens	Range	Mean	SD
Tarsometatarsus					
D. ater		50	205.0–278.0	232.12	16.079
D. baudinianus		25	253.7–279.3	269.30	7.343
Tibiotarsus					
*D. ater**		38	237.0–323.2	273.02	21.765
	(a)	28	237.0–284.5	261.80	10.880
	(b)	11	284.5–323.2	301.64	12.542
D. baudinianus		30	293.4–320.9	305.58	7.330

Diagnosis (based on mature tibiotarsi and tarsometatarsi only). Differs from the King Island Emu *D. ater* Vieillot, 1817 (Syn. *D. parvulus* Gould *in* Broderip, 1842 and *D. minor* Spencer, 1906; *vide* Parker in prep.) in having the average length of the tibiotarsus and tarsometatarsus pronouncedly greater, and in showing no apparent (? sexual) dimorphism in the length of the tibiotarsus (Table 1, and Parker in prep.). Differs also in having the intertrochlear foramen of the tarsometatarsus open (unbridged) in all specimens examined (this foramen is usually fully or partly bridged in the King Island Emu) and in having the outer trochlea more strongly incurved and produced towards the middle trochlea, thus constricting the external intertrochlear notch distally in contrast to this notch's more parallel-sided condition in the King Island Emu (Plate 1).

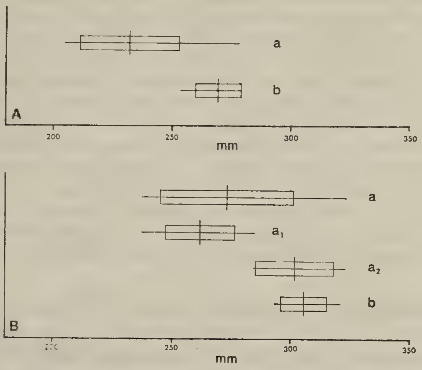

Figure 1. A, length (mm) of tarsometatarsi of (a) *D. ater.* (b) *D. baudinianus*; B, length of tibiotarsi of (a) *D. ater.* (a_1) putative males, (a_2) putative females, (b) *D. baudinianus*; mature bones only. The vertical line represents the mean, the horizontal line the range, and the rectangle the standard deviation x 1.3 either side of the mean (within which 90% of the sample population may be expected to occur).

Remarks. Whereas most of the tibiotarsi and tarsometatarsi of *D. baudinianus* are in an excellent state of preservation, most of those of the King Island Emu are too worn at their extremities for comparisons of total lengths to be valid. The measurements were therefore taken of the distance between certain subterminal points little affected or not affected by wear: on the tibiotarsus, the highest point of the proximal articulating surface and the deepest point of the distal intercondylar groove; and on the tarsometatarsus, the highest point of the proximal articulating surface and the deepest point of the groove in the middle trochlea.

Simple statistical analyses of the measurements are presented in Table 1 and Fig. 1. The bimodal distribution indicated for the tibiotarsal length in the King Island Emu was discerned from a basic histogram (Parker in prep.), and suggests sexual dimorphism. Also noteworthy is the more restricted spread in the tibiotarsal and tarsometatarsal lengths of *D. baudinianus,* which is suggestive of taphonomic differences between the samples of the 2 species (Parker in prep.). It also means that the true size-range for these elements in *D. baudinianus* is almost certainly greater than that of the sample to hand. In the forthcoming paper, an attempt will be made to derive a normal distribution from these apparently truncated distributions of *D. baudinianus,* and thereby estimate the true size-range of the elements in question. In the present article, only the size-ranges shown by the available material are given.

Etymology. It is with pleasure that I name this species after Post Captain Nicholas Baudin (1756–1803), commander of the French expedition to Australia of 1801–1804, whose party obtained the first specimens of both the Kangaroo Island Emu and the King Island Emu. I have used the adjectival form *baudinianus* rather than the genitive form *baudini* out of personal preference, notwithstanding the preference for the latter indicated in the International Code of Zoological Nomenclature, Appendix D 16(a).

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The identity of swamp-dwelling weavers in northeast Angola

by M. Louette

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The peculiar distribution of at least 3 species of isolated swamp weavers—*Ploceus reichardi, P. katangae* and *P. ruweti*—around certain lakes in southeastern Zaire and neighbouring Tanzania and Zambia was pointed out in a paper describing *P. ruweti* from Lake Lufira (Louette & Benson 1982).

Since then, which species occurs at Lake Dilolo (11°30′S, 22°00′E, in Rosa Pinto 1965) in eastern Angola has become speculative. Rosa Pinto mentions 3 immature males from there, which he refers to as *P. velatus tahatali* (=*shelleyi*; see Clancey 1974), a drier country weaver, allopatric to the others. *P. velatus* is at present known to occur in northwestern Zambia only in the Balovale district, not in Mwinilunga (Benson & Irwin 1967, *contra* White 1946) and also in southern Angola, but nowhere in the close vicinity of Lake Dilolo, having the core of its distribution more to the south.

However, the Centro de Zoologia, Lisbon (CZL) has no less than 7 specimens from Lake Dilolo and 2 more from neighbouring Lake Cameia (11°35′S, 20°45′E). All 9 specimens were made available to me for examination through the courtesy of Prof. J. Tendeiro. They were collected in August and September 1958, though none of the Lisbon specimens bears the date 18, 20 or 24 August as do the 3 mentioned by Rosa Pinto. Presumably therefore these do not include the specimens referred to by him. More important, unfortunately, is the fact that none of them is in full breeding (male) plumage, only 2 of the Lake Dilolo birds merely starting moult towards it. In measurements, however, it appears immediately (table 1) that they are larger in general than any of the isolated swamp weavers. Only some of those with "sex unknown" fall within the range of males of the *reichardi* group. It is unfortunate that no definite male is available from Lake Cameia. The Lake Dilolo wing measurements, on the other hand, agree well with those for *P. velatus shelleyi* (♂♂ 74–78.5 mm ♀♀ 68–73 mm, in Clancey). Nor is there anything in the coloration of the new generation of feathers appearing in the 2 moulting males to contradict an identification with *velatus*; in particular there are yellow feathers appearing on the breast, but with none of the chestnut wash which is present in *ruweti* and *reichardi*. The chestnut wash is absent also in *katangae*, but *katangae* has a maximum wing-chord in males of 70 mm, tail 46 mm (see above), and the sparrowy plumage of the Lake Dilolo birds agrees with that described for *velatus*, not that of *katangae* (as given in Benson & Irwin 1967). C. W. Benson did not have the occasion to see these specimens, but he agreed that they were *velatus* judging by their measurements.

TABLE 1

Measurements (mm) of swamp-dwelling weavers in Zaire and Angola.

	Wing-chord	Tail	Culmen	Tarsus	Source
Lake Dilolo					
4♂♂	73.5, 75, 76, 77	49.5, 50, 48, 52	16, 16, 16.5, 16.5	23, 23, 23, 22.5	CZL Nos 210, 243, 242, 107
3 sex unknown	69.5, 72, 72.5	44.5, 50, 47.5	15, 15.5, 16	21, 22.5, 21.5	CZL Nos 78, 224, 179
3 imm.♂♂	73–76	54–56	17–18	21	Rosa Pinto 1965
Lake Cameia					
2 sex unknown	69.5, 70 (both much worn)	43, 48.5	15, 16	20, 21	CZL Nos 26, 37
P. ruweti					
♂	71	45	16	20.5	Louette & Benson 1982
P. reichardi					
10♂♂	67–71 (69.5)	42–46 (44.3)	16–18 (16.8)	20–22 (21.0)	Benson *in* Louette & Benson 1982
1♀	64	40	15.5	19	
3♂♂	68, 70, 72	46, 46, 47	16, 16, 16.5	21, 21, 21.5	Louette *in* Louette & Benson 1982
P. k. katangae					
7♂♂	67–70 (69.0)	43–46 (44.9)	16–18 (17.2)	20–22 (21.0)	Louette & Benson 1982
6♀♀	62–64 (63.0)	40–41 (40.3)	15.5–16 (15.9)	18.5–19.5 (19.1)	
P. k. upembae					
3♂♂	66–69.5 (67.8)	45 (one)	17–19 (18)	20 (one)	Louette & Benson 1982

Thus, it appears that *P. velatus* occurs more to the north than is at present generally accepted, at Lakes Dilolo and Cameia; but it is nevertheless not certain that the species breeds in this area. It is true, however, that Rosa Pinto found that it occurred only in the vicinity of lakes and that it was apparently numerous, all specimens being caught in reeds.

Rainfall over the year averages c. 1250–1400 mm in 2 localities in this general area, considerably more than in 3 cities in southeastern Zaire close to the ranges of the typical marsh dwelling weavers (c. 950–1350 mm, Ergo & de Halleux 1979) and apparently more than in any known breeding locality of *velatus shelleyi*.

Thus, at present it appears that no isolated species of swamp-dwelling weaver occurs in Angola, unless in fact it proves to be larger than the other 3 species as in Table 1. The collection of a male in breeding plumage and studies of the birds' biology are awaited.

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Bird observations on Bali

by J. S. Ash

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In preparation for a planned "Field Guide to the Birds of Indonesia" by several authors, to serve as a companion volume to King *et al.* (1980), E. C. Dickinson (ECD) has drawn up an unpublished checklist based on published reports of the birds of that area. Bali, 5570 km², occupies a key position in the region lying across 115°E and just below 8°S off the eastern extreme of Java; it is the most westerly of the Lesser Sundas. Zoo-geographically, however, it possesses an Indo-Malayan avifauna, so that it is also the most easterly point in the Sundas west of Wallacea. The birds of Bali are therefore predominantly of westerly origin and have only a small Australian component, although Bali is separated by only 15–20 miles from the western extreme of Wallacea, namely Lombok, which contains many typically Australian groups.

Bali has been rather poorly known ornithologically, and its western forests have not been thoroughly investigated. Most of the lowland forest has been removed, but extensive areas of primary forest, although decreasing, still remain along the central spine at 1000–2150 m. The main threats to its birds are habitat alteration and increasing persecution by man.

During a visit to the island, 17 August—19 September 1981, and residence there 17 February—29 October 1982, I found 84 species of birds for which there were no previous published records; however 18 of these were included on ECD's list on the basis of 10 sight records by D. A. Holmes (=H), 7 specimens in the Leiden Museum (=L) and a doubtful record in Peters (1964) (=P). Furthermore, Victor Mason (=M) has unpublished sight records predating mine for some of the additions. I do not have details for most of these records, as they have been abstracted from lists, but in the following species' accounts the respective initials H, L, P and M in parentheses indicate that there have been records earlier than my own; they do *not,* however, refer to all the data given in each account.

The main purposes of this paper are to annotate and place these additions on record, and to comment on migration and the need for conservation. To obviate many tedious details of identification, descriptions have been submitted for each new record to M. D. Bruce, E. C. Dickinson, D. A. Holmes and Dr. D. R. Wells, all of whom have special knowledge of the area and its birds, and I have abided by their decisions on acceptability. A few doubtful records are included because there is only a small element of doubt about each of them and future observers may wish to be aware of the species' possible occurrence. Comments are included on distribution or occurrence in the general area adjoining Bali: in the Greater Sundas to the west, particularly; in the rest of the Lesser Sundas to the east, all within Wallacea; and sometimes in Sulawesi and the Moluccas, also within Wallacea. Borneo, in the Asiatic/Sundaic region, and the Philippines have not been included, and the Australasian region beyond Wallacea is referred to only when relevant.

I have used the distribution data in King *et al.* (1980) and Mackinnon & Wind (1980) for my purpose, although there is often lack of agreement between them. I have also included data from Nusa Penida, referred to as Penida, Lembongan and Ceningan, a group of islands totalling 200 km^2 south-east of Bali, which are administratively part of the main island. The nomenclature and order of King *et al.* is followed, with species not mentioned by them inserted as appropriate.

The inclusion of the following 84 species increases the Bali list by 44% to 274 species.

SPECIES LIST

Oceanites oceanicus Wilson's Storm Petrel. Common in inshore waters, 25.vii.–27.ix, including Penida. Also off Lombok. Little known in the area, but recorded Malacca Straits, Java, Sulawesi, Moluccas to Australasia.

Phaethon lepturus White-tailed Tropicbird. Locally common and presumed breeding, 9.vi.–16.ix, on cliffs of Penida and at Ulu Watu. (M). Known from Bornean seas and Java.

Sula sula Red-footed Booby. One off Seririt, 27.ix.82. On ECD's list, but authority unknown. Well known in the region.

Sula leucogaster Brown Booby. Rather uncommon round coasts, v–x, mostly adults, max. 17 off Ulu Watu. (M). Well known in the region.

Phalacrocorax sulcirostris Little Black Cormorant. Rare visitor. Pesanggaran: 1 on 28.v.82 and again with a *P. melanoleucos* on 3.vi.82. Occurs Java, Wallacea and Australasia.

Fregata spp. Frigatebirds. Very common round the coasts, with large eastward passage mid-vii though x. Sample counts, totalling 1100 birds, showed 1% *andrewsi*, 30% *minor* and 69% *ariel.*

Fregata andrewsi Christmas Frigatebird. Apparently rare. In 1982: Petitenget, 1 on 5.iii; Suwung, 3 on 18.vii. Known from the Greater Sundas.

Fregata minor Great Frigatebird. Very common; main passage ix. (M). Known from the Greater Sundas, Wallacea and Australasia.

Fregata ariel Lesser Frigatebird. The commonest species, with main passage mid-vii through ix. (H). Well known in the region.

Ardea cinerea Grey Heron. Rare visitor. Pesanggaran mangroves, flock of 10 on 2.ix.81, 1 on 16.iv.82; Negara, 1 in padi, 24.ix.82. In Indonesia and Malaysia Grey Herons are mangrove specialists (Wells & Holmes *in litt.*), but this niche is occupied by *A. purpurea* in Bali. Resident in the Greater Sundas, from where these birds probably originated, but rare in the Lesser Sundas.

Ardea novaehollandiae White-faced Heron. Rare visitor from Wallacea or Australasia. Penida, 3 on the shore at Semaya, 4.ix.82, and 1 on dry grassland at Pura Mundi (529 m), 5.ix. Unknown further west.

[*Egretta eulophotes* Chinese Egret. Birds agreeing with the description of this species in King *et al.* (1980) have been seen in Bali, but require further investigation.]

Egretta alba Great Egret. Rare visitor. In 1982: Suwung, 1 on 18.vii and 3.viii and Pesanggaran, 1 on 30.vii. (same bird?); Lake Buyan, 1 on 8 & 27.viii. Resident Greater Sundas, Sulawesi and Australasia, but also recorded Lesser Sundas and Moluccas.

Nycticorax nycticorax Black-crowned Night Heron. Locally abundant and breeds. In 1982: Suwung, a mangrove roost with up to 121 birds, iv-x; Pesanggaran, new-fledged young on

6.v; Teluk Terima, 1 on 25.x. Resident in the Greater Sundas and Sulawesi, but only known from Flores further east.

Ibis cinereus Milky Stork. Rare visitor. Prapat Agung: 1 flew east, 24.x.82, during a migration of raptors. Resident in the Greater Sundas, but from east of Bali known only from Sulawesi.

Plegadis falcinellus Glossy Ibis. Rare visitor in 1982: Petitenget, 3 on 1.iv. and 1 on 7.iv. Resident in Greater Sundas and Sulawesi; Moluccas.

Platalea regia Royal Spoonbill. Rare visitor in 1982: immatures at Pesanggaran, 30.vii. and 4.viii, and flying south off eastern tip of Bali, 28.ix. Resident in the Sundas.

Anas gibberifrons Grey Teal. Locally common in mangroves and on mudflats throughout. (H). No evidence of breeding. Resident in Sundas and Australasia.

Pernis apivorus Eurasian Honey Buzzard. Common autumn passage migrant in the west, 17–26.x.82. *P.a. ptilorhynchus* is resident in the Greater Sundas and is known from Sulawesi and north Irian, and also migrates (e.g. see Smythies 1981).

[*Circaetus gallicus* Short-toed Eagle. One almost certainly this species during raptor migration from the west at Teluk Terima, 26.x. It would be interesting if migrants still reached the resident population in the Lesser Sundas.]

Elanus caeruleus Black-shouldered Kite. Probably frequent visitor to west, where 1–2 were seen on 4 days in iv, ix and x.82. Resident in Sundas.

Accipiter gularis Japanese Sparrowhawk. Common spring and abundant autumn migrant, presumably overwintering, 1.iii.–20.iv. and 19.ix.–26.x.82. (M). East of Bali it is only known from Timor.

Accipter soloensis Chinese Goshawk. Probably uncommon spring but abundant autumn passage migrant. Petitenget, 1 on 11.iv.82; Prapat Agung, 149+, 21–26.x.82. Well known in the Greater Sundas, but east of Bali it is only recorded from Flores in the Lesser Sundas and West Papua (Australasia). Both this species and *A. gularis* must occur further east more frequently than the records suggest.

[*Accipiter badius* Shikra. A probable adult male at Petitenget, 1.ii.82.]

Buteo buteo Common Buzzard. Rare spring and autumn passage migrant. Wangaya Gede, 1 on 31.viii.81; Pesanggaran, 1 on 2.ix.81; Petitenget, 1 on 22.ii.82. It has not been recognised previously south of the Philippines nor east of Java, so that Bali is probably the limit of its southward migration.

Hieraaetus pennatus Booted Eagle. Rare autumn visitor in 1982. Lake Buyan, a pale phase adult, 14.x; Prapat Agung, a pale phase adult, 21.x, and a sub-adult, 25.x. Previously unrecorded south or east of Malaysia, where it is now recognised as a regular migrant south to Singapore.

Hieraaetus kienerii Rufous-bellied Eagle. Rare visitor during raptor migration from the west in 1982. Banyuwedang, 2 flew east, 23.x; Prapat Agung, 1 flew east, 24.x. Resident in the Greater Sundas and in Sulawesi; only known from Sumbawa in Lesser Sundas.

Spizaetus cirrhatus Changeable Hawk-Eagle. Rare visitor. Rangsasa, 1 on 28.viii.81. (L). Resident in the Sundas.

Coturnix chinensis Blue-breasted Quail. Rare. Petitenget. 2♂♂, 17.iv.82. (L). Resident in the Sundas.

Gallus gallus Red Junglefowl. On ECD's list, but authority unknown. Apparently common in higher level woodland and forest in Bedugul and Lake Batur areas above 1125 m and above the range of *G. varius*. Resident in the Sundas.

Turnix sylvatica Little Buttonquail. Petitenget, 1 on 2.ii.82. (L). Resident in the Sundas.

Rallus striatus Slaty-breasted Rail. Rare. Suwung, 1 on 30.ix.82. Resident in the Greater Sundas and Sulawesi, and has occurred in the Lesser Sundas (Timor).

Porzana fusca Ruddy-breasted Crake. Locally common in 1982 up to 210 m, and presumably breeds. In mangroves only iv to mid-ix, elsewhen only in padi. Recorded Pesanggaran, Suwung and Ubud. Resident in the Greater Sundas and Sulawesi, and has occurred in the Lesser Sundas.

Gallicrex cinerea Watercock. Fairly common non-breeding visitor, 1.iii.–1.vii.82, in wide range of habitats: clifftop dry scrub, padi, marsh and beachhead bush. (M). A migrant from further north as far as the Sundas.

[*Gallinula tenebrosa* Black Moorhen. Lake Buyan, several on 8 & 27.viii. 82 which lacked the white on the flanks of *G. chloropus* and were probably this species.]

Porphyrio porphyrio Purple Swamphen. Rare visitor. Lake Buyan, 2 on 12.x.82. (L). Resident in the Sundas.

Pluvialis squatarola Grey Plover. Locally common, iv-x. (H). A visitor to the Sundas and eastwards.

Charadrius dubius Little Ringed Plover. Fairly common autumn passage migrant, 30.vii.–1.x. (H). A visitor to the Sundas and eastward.

Charadrius alexandrinus Kentish Plover. Not numerous migrant, and uncommon breeder. The local birds (*C.a. javanicus?*) are near to *C. ruficapillus* in appearance. 10–12 days-old chick, 3.vi. and a 7–10 days-old chick, 14.vi. (H). Resident in Java, and is known from Sumatra, Sulawesi and E. Papua.

Charadrius mongolus Mongolian Plover. Common, iii–x in one area (peak number 484), but only once elsewhere. (H). A visitor to the Sundas and southward.

Charadrius veredus Oriental Plover. Uncommon autumn passage migrant, 10.ix.–1.x. Nusa Dua, 150 on 15.ix.81; Suwung, 6–13 on 5 days, 10.ix.–1.x.82. A visitor to the Sundas and southward.

Numenius arquata Eurasian Curlew. Uncommon visitor. Suwung and Gilimanuk, 1–2 on 14 days, 7.ii.–27.x.82. (M). A visitor to the Sundas and southward.

Numenius madagascariensis Eastern Curlew. Fairly common, iii–ix, in Suwung area with peak of 25 on 7.iii.82. (M). A visitor to the Sundas and southward.

Numenius sp. A curlew present in the Suwung area, 7.v.–26.vii.82 shared the characters of *N. arquata* and *madagascariensis* and may have been a hybrid.

Limosa limosa Black-tailed Godwit. Uncommon visitor in 1982. Suwung, 1 on 29.iv and 1–3 on 5 days, 13.viii.–1.ix. A visitor to the Sundas and southwards.

Limosa lapponica Bar-tailed Godwit. Uncommon visitor in 1981 and 1982 at Suwung, where 1–3 were seen on 11 days, 7.ii.–30.iv and 22.viii.–14.ix. A visitor to the Sundas and southward.

Tringa totanus Common Redshank. Common locally throughout my visits with peak of 149 on 22.viii.82. (M). A visitor to the Greater Sundas, but further east only known from Timor.

Tringa stagnatilis Marsh Sandpiper. Uncommon migrant, 28.viii.–20.x. in both years. Noted at Pesanggaran, Suwung and Singaraja, max. 14 on 9.ix.82. (M). A visitor to the Sundas and southward.

Tringa nebularia Greenshank. Common throughout my visits, max. 31 in vii. (M). A visitor to the Sundas and southward.

Xenus cinereus Terek Sandpiper. Rare visitor in 1982. Suwung, 1 on 14 & 23.v. and 1 & 3.viii. A visitor to the Sundas and southward.

Heteroscelus brevipes Grey-tailed Tattler. Locally very common throughout my visits, with 100-170 in iv–ix. (M). A visitor to the Sundas and southward.

Gallinago megala Swinhoe's Snipe. On ECD's list, but authority unknown. Status uncertain, but suspected to be fairly common iii–iv. Petitenget, a bird shot on 25.iii.82 with 13 *G. stenura* was examined and identified as *G. megala*. A visitor to the Sundas and southward.

Calidris canutus Red Knot. Rare visitor. Suwung, 2 on 2.vi.82. A visitor to the Greater Sundas and known from Sulawesi.

Calidris tenuirostris Great Knot. Rare visitor in spring and autumn 1982. Suwung, 2 on 21.iii, 1 on 24–25.viii and 10.ix. Presumably the main route out of the Palaearctic lies still further east. Visitor to the Sundas and southward.

Calidris ruficollis Rufous-necked Stint. Locally abundant throughout my visits, with large non-breeding population in summer. Max. 406 in v. Usually on shore and rarely in padis. Visitor to Sundas and southward.

Calidris subminuta Long-toed Stint. Locally abundant spring and autumn passage migrant, 16.iii.–8.iv. and 13.vii.–1.x.82. Max. 500 in spring, 27.iii. and 200 in autumn, 25.viii. Most were in remigial moult in autumn. Unlike *C. ruficollis*, is almost entirely restricted to the padis. In this area known only from Sulawesi and the Greater Sundas and southward.

Calidris acuminata Sharp-tailed Sandpiper. Locally fairly common spring passage migrant in 1982, 19.iii.–5.iv, and once in vi. Peak of 15 on 22.iii. at Petitenget. A visitor to the Sundas and southward.

Calidris ferruginea Curlew Sandpiper. Very common throughout my visits including non-breeding birds. Max. 300 in iii, 400 in viii and 1000 in ix. A visitor to the Sundas and southward.

Crocethia alba Sanderling. Fairly common throughout my visits; max. 37 on 26.vi.82. (H). A visitor to the Sundas.

Philomachus pugnax Ruff. Rare autumn passage migrant. Suwung, ♀, 12 & 16.ix.81; ♂, 25.viii.82. Not previously recorded in the Sundas or in Wallacea beyond the Philippines; Australia.

Himantopus himantopus Black-winged Stilt. Uncommon visitor in 1982, iv–x. Suwung, 3 on 30.iv, 1 on 22.vi. and 30.vii.–1.x, 2 on 20.ix. *H. h. leucocephalus* is resident in Greater Sundas and Australasia; known from Lesser Sundas.

Phalaropus lobatus Red-necked Phalarope. Autumn visitor. 15 on sea, 27.ix.82, from Penuktukan to Kuba on north coast. Known from Sulawesi, Moluccas, Lesser Sundas and Australasia. Smythies (1981) refers to it as offshore from Bali, 16–17.xi.54.

Stercorarius pomarinus Pomarine Jaeger. Probably regular spring and autumn passage migrant. In 1982, Petitenget, 1 on 25.iii; Seririt, 4 on 27.ix; Tianyar, 3 on 27.ix. Not previously recorded from the Sundas, but is known from Penang, Sulawesi and Australasia.

Stercorarius parasiticus Parasitic Jaeger. Probably fairly common spring passage migrant. 6 records of pale phase adults, 24.iv.–8.v.82, seeking out flocks of migrating *Childonias leucopterus* along the shore. Suwung, 2 on 24 & 28.iv, 1 on 29.iv. and 8.v. Unrecorded in the region south of Borneo.

Chlidonias hybrida Whiskered Tern. Not uncommon autumn passage migrant, ix–x. Pesanggaran, 10 on 2.ix.81; in 1982 at Suwung, 5 on 17.ix; Kapal, 7 on 12.x; Singaraja, 3 on 20.x. Resident in Sulawesi and Australasia, and known from Greater Sundas and Moluccas.

Chlidonias leucopterus White-winged Tern. Locally common spring and autumn passage migrant in 1982, 7.iii.–1.v. and 30.ix.–27.x, and probably overwinters. Large passage E/ENE out to sea from E. coast, 24–29.iv. Known from the Greater Sundas and Sulawesi, and breeds in Australasia.

Sterna hirundo Common Tern. Common in 1982 as spring and autumn passage migrant, and presumed winter visitor. Noted in hundreds all coasts, 7.iii.–25.iv. and 9.ix.–29.x. A visitor to the Sundas.

Sterna anaethetus Bridled Tern. Uncommon visitor 1981-2, 23.viii.–29.x. Legian, 3 on 23.viii.81. In 1982, Teluk Terima, 1 on 26.ix; Penuktukan, 2 on 27.ix; Legian, 20 on 29.x. Resident Sulawesi and Greater Sundas, and known from Lesser Sundas.

Sterna albifrons Little Tern. Very common 1981–2, 7.iii.–4.iv and 29.vii.–17.x, and probably overwinters; often over 100 together. (H). Known from the Sundas and breeds in some areas.

[*Anous minutus* White-capped Noddy. Probably uncommon visitor; 1–2 small *Anous* sp. on 4 occasions 15–27.ix.82 off Lembongan and north coast.]

Ducula aenea Green Imperial Pigeon. Rare, except in one area. In 1982: Bali Barat, 2 on 24.ix, 1 on 26.ix. and 19.x; Penida, 22+ at Temiling and 30 at Saren, 3.ix, common near Batumadeg, 5.ix. (L). Under grave threat due to shooting on Penida. Resident in Sundas.

Eudynamys scolopacea Common Koel. Rare and local in 1982. Megali, 2 taken and hand-reared to full-grown; Penida, 1–6.ix, a male at Temiling and a pair near Batumadeg. (M, at Ubud). Resident in Sundas and beyond.

[*Aerodramus brevirostris* Himalayan Swiftlet. Rare visitor, probably this sp. or possibly *A. maxima*. Suwung, 1 on 17 & 22.ix. Resident Sumatra, Philippines and Papua New Guinea.]

Aerodramus vanikorensis Mossy-nest Swiftlet. Common round mountain forests, but descends to lower ground in evenings. Occurs Rangsasa, Petitenget, Suwung, Pesanggaran, Wangaya Gede, Tamblingan, Lake Buyan, Banyuwedang. Resident Sulawesi, Lombok, Moluccas and Australasia.

[*Aerodramus spodiopygea* Australian Swiftlet. Rare visitor, probably this sp. or possibly an eastern white-rumped race of *Collocalia esculenta*. Suwung, 2 on 21.iii.82.]

Hirundapus cochinchinensis White-vented Needletail. Rare. Teluk Terima, 2 on 26.x.82. Only previously recorded from Sumatra in this region.

Hirundapus giganteus Brown Needletail. Uncommon. Mangissari, 2 on 29.viii.81, 4 on 16.vi.82; Puckasari, 1 on 16.vi.82; Prapat Agung, 1 on 25.ix.82; Payangan, 3 on 6.x.82. Resident on Greater Sundas and Sulawesi.

Apus pacificus Fork-tailed Swift. Abundant passage migrant and presumed winter visitor. Unrecorded 11.iv.–23.ix. Huge eastward autumn immigration from Java. (H). Known from Sundas to Australasia.

Apus affinis House Swift. Fairly common and widespread 1981-2, iii–ix; presumably resident. Noted Pekutatan, Ubud, Ulu Watu, Petitenget, Teluk Terima, Prapat Agung, Nusa Penida, Lake Buyan and Legian. Resident in Sulawesi and Greater Sundas, but nowhere else in region.

Picoides moluccensis Brown-capped Woodpecker. Rare. Sumberklampok, 1 on 26.ix.82. Resident in Sundas. On ECD's list, but authority unknown.

Hirundo tahitica Pacific Swallow. Common and widespread on coast and inland; breeds. (H). Resident in Sundas and eastward.

Hirundo daurica Red-rumped Swallow. Fairly common 11–18.iv. and 25.viii.–26.x. 1–5 seen 1981–2 at Klungkung, Anturan, Banyuwedang, Gilimanuk, Penelokan, Prapat Agung, Teluk Terima, possibly resident or intra-Sundas migrant or both. Known from Greater Sundas, resident in Lesser Sundas.

Delichon dasypus Asian House Martin. Rare autumn passage migrant and possible winter visitor. Near Banyuwedang, 1 on 18 & 23.x.82 flew east with migrant raptors; distinguished from *D. urbica* by dusky white underparts. Recorded previously from Java, but otherwise unknown south of Malaya and Sulawesi.

Pycnonotus aurigaster Sooty-headed Bulbul. Locally uncommon (introduced?) along southern coast at Sanur, Nusa Dua, Ulu Watu, Petitenget; presumably breeds. (M, at Ubud). Resident in Java, and introduced into Sumatra and Sulawesi.

Dicrurus paradiseus Greater Racket-tailed Drongo. Rather rare, 1982. Tamblingan, 1 on 6 & 10.viii; Bedugul, 1 on 8.viii; Teluk Terima, 1 on 19.x. (L). Resident in Greater Sundas, but unknown eastwards.

Zoothera dauma Scaly Thrush. The original source of the record in Peters (1964) has not been traced. Rare at 1220–1280 m. Bedugul, 1 on 8.viii. and 2 on 14.x.82 at different sites. (P). Resident in the Sundas.

Zoothera andromedae Sunda Ground Thrush. Rare at 1200–1280 m in 1982. Tamblingan, 1 on 9.viii, Bedugul, 1 on 14.x. Resident in the Sundas.

Locustella ochotensis Middendorf's Warbler. Rare visitor. Suwung, 1, probably 2, on 27.x.82 in padi. Its dark colour without any streaking or rufous colouration indicates the race *L. o. pleskei*. Recorded from Wetar in the Lesser Sundas, but otherwise unknown south of Sulawesi and Borneo.

Muscicapa latirostris Asian Brown Flycatcher. Rare visitor. Teluk Terima, 1 on 24.x.82. Known from Sulawesi and the Greater Sundas.

[*Anthus* sp. A small unidentified pipit walking about on a large branch of a high tree at Tirtagangga, 26.viii.81, may have been either *A. hodgsoni* or less likely *A. gustavi*.]

[*Aplonis minor* Lesser Glossy Starling. On ECD's list, but authority unknown. Doubtfully recorded in 1982: Wangaya Gede, 2 on 21.iv; Lake Bratan, 1 on 9.vii; Tamblingan, 2 on 6.viii. Resident in Java, Lesser Sundas and Moluccas.]

Acridotheres javanicus White-vented Myna. Fairly common throughout my visits, at 0–210 m. All the dark mynas seen, except *Gracula religiosa*. are included under this species: they varied from nearly black to greyish-brown (juveniles?) and generally showed little white on their undertail coverts. Resident in Sulawesi and Greater Sundas.

Arachnothera longirostra Little Spiderhunter. Uncommon and local at 207–830 m in 1982; presumably breeds. Wangaya Gede, 2 on 21.iv; Ubud, 1 on 12 & 12.vi, and 1 daily 4–11.x. (M). Resident in Greater Sundas.

Ploceus philippinus Baya Weaver. At least 4 nests in coconut palms at Sanur in 1982 differed from those of *P. manyar*, having much longer funnels and being more finely woven. A male had a black mask confined to the lores, around eye, and ear coverts, but a clearly spotted breast like *manyar*.

Lonchura molucca Moluccan Munia. Locally very common, 1–6.ix.82, on Penida and Lembongan, outnumbering *L. leucogastroides* by 185:108. A Wallacean endemic resident in the Lesser Sundas, where it is not known from west of Sumbawa.

MIGRATION

With few exceptions information from Bali on migration is sparse, in particular of migrant species of Sylviidae and Muscicapidae. My sighting were rare, possibly because these normally late migrants may have arrived in both years after my departure, and in 1982, although I was present February–April I spent most of the time in coastal areas unsuitable for passerine migrants. However, a spectacular migration of raptors was discovered, and this is discussed below together with briefer notes on the migratory status of some other species.

Raptors

Impressive numbers of raptors arrived from Java in the Gilimanuk/Banyuwedang area of NW Bali in late October 1982. They continued on into Bali on an E/ESE course. In counts on 7 mornings in the period 17–26 October the following species were observed: *Pernis apivorus* Eurasian Honey Buzzard, total 119 (peak: 42 on 21st), with 66% of the birds in the period 08.00–09.30 hrs, usually flying singly (56%), but occasionally up to 6–7 together; both adults and immatures were present, and c.4% were dark-phase birds. *Elanus caeruleus* Black-shouldered Kite, 2 noted accompanying passing migrants. *Circaetus gallicus* Short-toed Eagle, one, almost certainly this species, arrived low over the sea at 07.15 on 26th. *Accipiter gularis* Japanese Sparrowhawk, total 343 (peak: 108 on 18th), with 86% fairly evenly distributed between 08.00 and 10.30, many flying singly (48%), but others in flocks of up to 32 birds. *A. soloensis* Chinese Goshawk, total 153 (peak: 92, +19 which were more probably this species than *gularis,* on 26th; i.e. a week later than *gularis*), with 53% concentrated in the period 09.00–09.30, and fewer flying singly (35%), but others in flocks of up to 21 birds. *Hieraaetus pennatus* Booted Eagle, 1 on 21st and 25th with the other migrants. *H. kienerii* Rufous-bellied Eagle, 2 on 23rd and 1 on 24th with the other migrants.

Presumably the northern raptors crossing from Java are a continuation of the large numbers passing south through Malaysia in autumn (Medway & Wells 1976), but it is possible that this stream of birds, by the time it reaches Bali, has been augmented by others from Borneo and even Sulawesi. The present observations are inadequate to postulate the ultimate destination of these migrants, although it is improbable that many of them remain in Bali. *Pernis* has been recorded once before, on 15 April 1973, in Bali (by D. R. Wells), but an interpretation of the situation in Indonesia is complicated by the presence of resident *P. a. ptilorhynchus,* which also migrates, in the Greater Sundas, Sulawesi and North Irian. Indeed, it is also possible that some of the birds entering Bali may have originated in western Indonesia.

A. gularis breeds in NE Asia and overwinters south to Borneo and the Greater Sundas. Presumably it overwinters in Bali also, but no doubt many of those arriving there in October move on further east, in spite of there being only one record (from Timor). Probably it has been overlooked, for there are no previous records from Bali either. I saw none in Bali in February, and then at least 12 sightings, 1 March–20 April, indicating a return passage and strengthening the suggestion that most autumn arrivals pass through to destinations further east. The situation for *A. soloensis* is probably very similar, although east of Bali it is only known from Flores and West Papua. I have one spring record in Bali, on 11 April.

Buteo buteo Common Buzzard was not seen during the raptor counts, but the 3 recent records indicate that Bali is probably the limit of its southward migration. It is altogether rare in the region, occurring in Malaysia and Java only and not at all in Borneo. Booted Eagles, as with other migrant raptors, have probably been overlooked, and it is only recently that they have been recognised as regular migrants to Malaysia and south to Singapore. *H. kienerii,* previously unrecorded in Bali, behaved as if on migration, but were not actually seen over the sea. The only evidence I have found for migration in this species is that I. C. T. Nisbet saw one moving, interestingly, with migrating *Pernis* in Malaysia (D. R. Wells).

The birds counted in NW Bali were an unknown fraction of the total involved. They were known to be travelling on a front several kilometres wide, and although many were flying low down there were many at a great height, particularly the Accipiters, invisible to the naked eye and sometimes overhead at the extreme range of 10 x 40 binoculars (presumably at over 3000 m).

WADERS

There was little sign of visible migration, but this could have been overlooked in the large movements of waders overland each morning and evening. Over a large part of SE Bali all the waders on the extensive padis move eastward towards the coastal mudflats for the night. However, seasonal changes in numbers at certain sites provided an indication of when migration occurred, although on the coast even this situation is confused by the large numbers of non-breeding northern waders remaining through the boreal summer. D. R. Wells writes that "Malaya has very few waders indeed in June and where the big influxes of second summer birds come from in late July to August has always been a mystery". Possibly some come up from Indonesia; this would imply a northward trans-equatorial migration at a time of the year when adults from further north are already arriving in the south. Such a situation would conceal any population changes during this period in Bali. Frequent counts, indeed, at a high-tide wader roost on Bali, April–October, showed no major changes in overall numbers which could not be accounted for by other than new arrivals, e.g. a large passage of *Calidris ruficollis* Rufous-necked Stints in late May, and a large arrival of *Charadrius mongolus* Mongolian Plovers in August. In June, when the situation was likely to be most stable, there were still present up to 750 waders of 16 species at the roost.

Frequent counts covering 200 ha of rice padis, March–October, provided better information on periods of passage, particularly for those species for which this was their preferred habitat. As examples, peak *Tringa glareola* Wood Sandpiper passage in spring was in the last half of March with numbers up to 2000 in the last week; *Calidris subminuta* Long-toed Stint spring passage was between 15 March and 8 April, peaking at c. 500 at the end of March; *C. acuminata* Sharp-tailed Sandpiper passage in spring was confined to the period 19 March–5 April.

On one occasion 16 *Gallinago stenura* Pintail Snipe departed together in a party from a padi at sunset and were followed until out of sight as they rose high, flying away due north.

In summary, Bali with its extensive areas of tidal flats and irrigated padis, is an important staging post for waders on passage and for oversummering and overwintering waders. At peak periods total numbers on the island must be far in excess of 10,000.

OTHER SPECIES

Gallicrex cinerea Watercocks were fairly common non-breeding visitors in a wide range of habitats, 1 March–1 July. Sightings of 15 *Stercorarius* skua spp. in spring and autumn, including a probable *S. longicaudus,* is an unprecedented occurrence in SE Asia, and suggests that they have been overlooked elsewhere. Tern passage was notable, including movements of: *Chlidonias hybrida* Whiskered Tern September–October; *C. leucopterus* White-winged Tern March–May, when large compact flocks flew eastwards, and again September–October; *Gelochelidon nilotica* Gull-billed Terns, with spring passage until 22 May, and again from 12 August; *Sterna hirundo* and *albifrons* Common and Little Terns (see species list); and *S. bergii* Great Crested Terns August–September, when large numbers moved eastward.

Cacatua sulphurea Lesser Sulphur-crested Cockatoos arrive irregularly in large numbers in irruptions from the east. Migrant cuckoos recorded included *Cuculus saturatus* Oriental Cuckoo and *Chrysococcyx basalis* Horsfield's Bronze Cuckoo, the latter confined to brief periods, 25–28 May and 15–19 August; but owing to difficulties of identification much more investigation is required. *Hirundapus cochinchinensis* White-vented Needletail was recorded only once. *Apus pacificus* Fork-tailed Swifts were abundant (absent 11 April–23 September) passage migrants and presumed winter visitors; huge numbers, many at a great height, arrived in NW Bali from the direction of Java during raptor migration at the end of October. Austral migrant *Halcyon sancta* Sacred Kingfishers were locally common 16 April–9 September, with only a few thereafter. Migration of *Merops philippinus* Blue-tailed Bee-eaters was eastwards through Bali on a broad front; they were abundant from the second week of August and birds were seen in coastal areas arriving from Java in western Bali, leaving Bali eastward, and arriving on Nusa Penida from Bali. There was a movement of *Rhyticeros undulatus* Wreathed Hornbills September–October, up to 36 birds in a day, between NW Bali and Java, and *vice versa,* but this was judged to be daily commuting between feeding areas.

There were sightings of 7 *Pitta guajana* Banded Pittas, which may have been distant migrants from mainland SE Asia, in the short period 19–25 October. *Hirundo rustica* Barn Swallows were abundant passage migrants and winter visitors, 13 August–20 April, and there were 2 autumn *Delichon dasypus*. Records of *Locustella ochotensis* Middendorf's Warbler and *Muscicapa latirostris* Asian Brown Flycatcher are given in the species list. *Motacilla flava* Yellow Wagtails were presumed winter visitors, common in padis, 12 September–20 April, and a probable *Anthus hodgsoni* Olive Tree Pipit was noted. *Lanius cristatus* Brown Shrikes were uncommon presumed winter visitors or passage migrants or both, in March and October.

NEED FOR CONSERVATION

As mentioned earlier, the main threats to birds on Bali are habitat alteration and persecution by man, especially in the heavily populated eastern half of the island, which ecologically is almost entirely altered by man's activities. Of the species recorded in the past, 24 were not seen in 1981 or 1982, although most of these apparently were vagrants or casual visitors; but notable omissions were *Ptilinopus porphyreus* Crimson-crowned Fruit Dove, *Trichoglossus haematodus* Rainbow Lorikeet, *Phodilus badius* Bay Owl, *Anthracoceros convexus* Southern Pied Hornbill, *Dryocopus javensis* White-bellied Woodpecker and *Pycnonotus atriceps* Black-headed Bulbul. All of these may have disappeared with the destruction of lowland forest, but pigeons, doves and parrots are particularly harassed by man.

Habitat destruction or alteration, although beneficial to some species, is undoubtedly detrimental to others, and continued deforestation—although controlled to some extent on Bali—will have a serious affect in the future on the ecology of the island and the welfare of its rapidly increasing human population. Human persecution is on an increasing scale through widescale trapping for cage-birds and shooting for food and sport throughout the year. Presumably this has partly resulted from socio-economic changes which have degraded the former protective element inherent in the traditional adherence to the particular Balinese form of Hinduism. To this can be added the increased affluence brought about by the tourist trade resulting in large numbers of motorised gun-owners having easy access to the countryside. Law enforcement, even within the National Park, is almost entirely ineffective in spite of the good intentions of the staff, and there would appear to be no gun control at all except for a restriction on bore-size (yet even eagles are killed with airguns).

There can be few Balinese households without a caged bird, and frequently there are many in one house, often including a wide diversity of species. There is a flourishing, and presumably largely illicit, export trade in caged birds. High prices offered in the lucrative markets of Japan, elsewhere in SE Asia and in Saudi Arabia, encourage this trade.

The endemic *Leucopsar rothschildi* Rothschild's Starling is greatly endangered. It is confined to a small area in the Bali Barat National Park, and is under serious threat due to the price on its head, equivalent to about US $130 for a live bird in 1982 and to the activities of at least 8 birdcatchers actually resident in the Park, as well as to ineffective protection. I obtained direct evidence of trapping of this species with the use of a decoy and 'bird-lime'; another technique reported involves the use of a live cat, suspended by a hind leg from a tree, whose calls attract this bird. The birds caught are offered for sale and I have seen as many as 16 together in cages—the property of one man. The activities of all these people are known to the authorities, but it does not seem to be possible to take effective action. The largest number of *L. rothschildi* I saw together in 1982 was 26 in a day-time roost with *Sturnus contra* and *melanopterus,* but a birdtrapper was active in the roost at the time with a decoy and limed sticks. It is hard to believe that the species can exist for much longer in the wild, and probably little can be done at this stage to save it. Any scheme to release birds in the wild will merely greatly benefit the local birdcatchers and those who support them.

Columbids which congregate on fruiting trees are particularly vulnerable to trappers and shooters. On Nusa Penida it is remarkable that some species still survive at all. *Ptilinopus melanospila* Black-naped Fruit Dove, of which there may be less than 10 surviving there (only one pair was found even on mainland Bali) and *Ducula aenea* Green Imperial Pigeon, of which there are probably only 200–300 (only 4 were seen on the mainland), must have been greatly reduced by a visiting party of shooters from Bali who killed over 200 pigeons in one week-end in 1982 (*per* R. Beudels).

The outlook is at best gloomy for many species under the pressure of a large and increasing human population. For adequate bird protection and conservation no half-way measure is likely to be effective. Only complete protection along the following lines can succeed:—

— a total ban on the use of fire-arms out-of-doors;
— a total ban on the capture, injuring or killing of any wild bird by any means, including use of decoys, liming, trapping, snaring, netting, shooting, use of catapults, blowpipes, etc., and the taking of nestlings;
— a total ban on the possession of caged wild birds;
— a total ban on the import and export of any wild bird, as well as on the transit through Bali of birds caught elsewhere;
— a realistic controlled and managed programme for the exploitation of the nests of *Aerodramus fuciphaga* (currently over-exploited);
— effective law-enforcement.

FURTHER WORK

Ornithologically Bali has been a much-neglected island, as the above results will show. Much remains to be done, particularly in terms of observational studies, and undoubtedly there remain significant discoveries to be made similar to the recognition of the large raptor passage in autumn 1982 and the finding of Wallacean species on Nusa Penida—*Lonchura molucca* for the first time and the confirmation that *Dicaeum maugei* Blue-cheeked Flowerpecker and *Zosterops chloris maxi* Mangrove White-eye are still present there.

For the increasing number of ornithological visitors to Bali it is worth indicating some of the studies that might be undertaken and some problems requiring elucidation.

Nusa Penida, especially its south coast cliffs, needs detailed survey, as do the Highland Forests; sea-watches would be very profitable and the breeding status of *Phaethon lepturus* needs investigating; raptor counts in E Java, NW and E Bali, preferably co-ordinated, would add much knowledge; the confused situation over the status and identification of egrets, and also of cuckoos, needs elucidating; the respective status and habitat preferences of the trillers *L. sueurii* and *nigra*. of which the latter may also occur in the west, need investigating, as also does the distribution of the newly discovered *Ploceus philippinus* Baya Weaver in palms at Sanur in relation to *P. manyar*; and the starlings and mynas need plumage/age related and taxonomic studies.

Of the swiftlets, at least 6 distinct taxa occur on Bali, including:– *Collocalia esculenta*, a very common resident; *Aerodramus fuchiphagus*, a local resident; *A. vanikorensis*, seen once (but possibly *A. maxima*); *A. spodiopygea*, seen once (but possibly an eastern white-rumped race of *C. esculenta*). Much more work is required to establish identifications and status, preferably with the collection of specimens.

So far, 4 populations of *Trichastoma* babblers have been located all of which were regarded as *T. sepiarium*, though probably more than one species is involved:– at Bedugul at 1280 m, at Wangaya Gede at 830 m, at Ubud at 270 m, and at Teluk Terima near sea-level. The birds at Wangaya Gede are darkest, with greyish-black crowns and white throats, and call with a series of 4–5 notes, of which the first is soft followed by 3–4 louder ones; at Ubud they are not so dark on the crown and their calls are a hoarse "kwick-kwick- . . ."; at Teluk Terima they feed in more open ground on the woodland floor and have the head area only slightly greyer than the mouse-brown upperparts, with a very faint pale supercilium, whitish-buff throat, whitish-buff on the centre of the underparts, warmer buff flanks and undertail coverts, dark short tails and pale legs. The possibility of *T. pyrrhogenys* occurring, or even a new species, needs to be explored, but there is much geographic variation in both *sepiarium* and *pyrrhogenys*.

I shall be happy to provide more detailed information on any of the above problems, which so urgently need investigation, as well as supply a map of the 87 10 km-grid squares (8°S and 115°E used as baselines) of Bali, of which 82 contain very variable amounts of data.

Acknowledgements. I greatly benefitted from a lengthy correspondence with both D. A. Holmes, with his special knowledge of the birds of the Greater Sundas, and Dr. D. R. Wells, who generously shared his astonishing knowledge of the birds of Malaysia, Borneo and the Sundas; from M. D. Bruce and E. C. Dickinson I received much help with the old records and the provision of papers; all 4 of the above kindly vetted my descriptions, of which they retain copies. Victor Mason shared with me many of these observations, and provided much help and enjoyable hospitality. Various kinds of help were also provided most kindly by: M. Alaire (the loan of maps); R. Beudels; Dr. Nigel Collar; P. R. Colston; the Earl of Cranbrook (swiftlet identification); G. F. Mees (*Zosterops* identification); Mr. & Mrs. A. H. Robinson; Alan Rogers and Dr. Aidan Sudbury, who sent me their field notes from Bali. Dr. J. F. Monk earns my gratitude for his never-failing editorial help and must be held responsible, through his goading, for this paper developing into twice its original length.

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APPENDIX.

Gazetteer of localities in Bali. Latitudes are shown as degrees and minutes South, Longitudes as degrees and minutes East.

Locality	*Coordinates*	*Alt. (m)*
Anturan	8.09, 115.03	0–25
Bali Barat	N.W. Bali	
Banyuwedang	8.08, 114.34	<10
Batumadeg	8.45, 115.32	300
Batur, Lake	8.15, 115.25	1125
Bedugul	8.17, 115.10	1200
Besakih	8.22, 115.27	950
Bratan, Lake	8.17, 115.11	1220
Buyan, Lake	8.15, 115.07	1200
Celukanbawang	8.12, 114.50	0
Ceningan	8.42, 115.27	0–100
Gilimanuk	8.10, 114.26	0
Kapal	8.35, 115.10	100
Klungkung	8.32, 115.24	100
Kubu	8.15, 115.34	35
Legian	8.43, 115.10	0
Lembongan	8.41, 115.27	0–50
Mangissari	8.22, 114.53	500
Negara	8.22, 114.37	10
Nusa Dua	8.48, 115.14	0
Nusa Penida	8.45, 115.30	0–529
Payangan	8.26, 115.14	400
Pekutatan	8.26, 114.50	20
Penelokan	8.16, 115.22	1225
Penuktukan	8.08, 115.23	20
Pesanggaran	8.43, 115.13	0
Petitenget	8.41, 115.09	0
Prapat Agung	8.08, 114.28	0–310
Puckasari	8.18, 114.58	730
Pura Mundi	8.43, 115.32	529
Rangsasa	8.17, 114.39	900
Sanur	8.41, 115.15	0
Saren	8.46, 115.30	250
Semaya	8.44, 115.37	25
Seririt	8.11, 114.56	0
Singaraja	8.07, 115.06	0–30
Sumberklampok	8.10, 114.29	<25
Suwung	8.42, 115.14	<10
Tamblingan	8.16, 115.06	1200
Teluk Terima	8.09, 114.32	0
Temiling	8.46, 115.30	280
Tianyar	8.12, 115.30	<10
Tirtagangga	8.24, 115.36	350
Ubud	8.31, 115.16	207
Ulu Watu	8.50, 115.05	100
Wangaya Gede	8.22, 115.06	830

Address. Dr. J. S. Ash, Division of Birds, National Museum of Natural History, Smithsonian Institution, Washington, D.C. 20560, U.S.A.

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Books Received

Brush, A. H. & Clark, G. A. Jr. (Eds.). 1983. *Perspectives in Ornithology.* Pp. 560. Cambridge University Press. £20 ($29.95).

Essays presented for the Centennial of the American Ornithologists' Union. Ernst Mayr provides an Introduction and a scholarly appreciation of the 13 chapter topics, which "provide modern perspectives of some of the major scientific problems of modern ornithology", besides offering his own comments on additional aspects. The Editors, who are to be sincerely congratulated on their careful work, have tried to choose from a "staggering" selection of topics those which emphasised new research areas or subjects undergoing significant change, the authors being encouraged to reflect, provoke and be as controversial as they might wish. Most chapters have several pages of additional commentary from one or even two authors expert in the same field, but not necessarily with the same views. The Editors' approach appears to have been suitably responded to by the 33 authors, who must form an important portion of international ornithological expertise, mainly and appropriately in this context from the U.S.A. The chapter topics cover a wide field, from, for example, mating systems, navigation, ecological energetics to song learning, microevolutionary processes, biogeography and so on. The whole, regretted by the Editors as inevitably far from comprehensive, is a distillation of much that is new and exciting in ornithological research. It is rewarding reading and a fitting publication for an eminent learned society to have sponsored in celebration of its first centenary.

Lack, D. 1983. *Darwin's Finches*. Pp. 208. Illustrated. Cambridge University Press. Hardcover £19.50 ($39.50). Paperback £7.95 ($13.95).

Re-issue of this important book first published in 1947 (2nd edition 1961) with an Introduction and notes on each chapter by L. M. Ratcliffe & P. T. Boag. The Introduction relates and discusses Lack's re-interpretation of his first publication, *The Galapagos Finches – a Study in Variation,* published as an Occasional Paper of the Californian Academy of Sciences; and describes how modern research is still occupied in filling out his "original, cogent formulation of the adaptive radiation model". The notes and their references (Pp. xxiv-liii) comprehend a wide knowledge of the subject and the literature. A very useful publication.

Temple, S. A. (Ed). 1983. *Bird Conservation*. Pp. 148. Published for ICBP United States section by University of Wisconsin Press. Paperback. $12.95.

A new annual publication specifically designed to disseminate information on American bird conservation activities. It is in 3 sections. The first covers major reports, in this volume on the Peregrine in eastern USA, the Bald Eagle in northern USA and reproduction in the California Condor, with well presented factual data and discussion on management. The second part provides "Bird conservation news and updates", dealing with a variety of subjects such as international trade in endangered species, the status of Whooping Crane conservation and tropical deforestation in relation to North American migrants. The third section (14 pp) is a bibliography of bird conservation literature referring to American birds on the threatened and endangered list. A useful publication.

Love, J. A. 1983. *The Return of the Sea Eagle*. 227 Pp. 85 Figs, 14 Tables. Cambridge University Press. £15.00 ($29.95).

The author describes the world distribution, breeding and feeding habits of this great bird and traces historically and factually its persecution in northern Europe and its demise at the turn of the century in Britain. The final chapters describe the re-introduction scheme, the brain-child of Dr. Ian Newton, being staged on the Isle of Rum in the Inner Hebrides, where the author has managed the scheme for the Nature Conservancy Council since 1975. In 1983, 3 pairs bred in Scotland, though no eggs were hatched successfully and it appears that there may be as many as 7–8 pairs in breeding territories. An interesting and informative volume, written in an easy style, the figures including photographs, maps and attractive pen and ink sketches by the author.

NOTICE TO CONTRIBUTORS

Papers, whether by Club Members or by non-members, should be sent to the Editor, Dr. J. F. Monk, The Glebe Cottage, Goring, Reading RG8 9AP, and are accepted on the understanding that they are offered solely for publication in the *Bulletin.* They should be typed on one side of the paper, with double-spacing and a wide margin, and submitted with *a duplicate copy on airmail paper.*

Scientific nomenclature and the style and lay-out of papers and of References should conform with usage in this or recent issues of the *Bulletin,* unless a departure is explained and justified; but informants of unpublished observations (usually given as *in litt.* or pers. comm.) should be cited by initials and name only, e.g. "... catches wasps (B. Eater)", but "B.B.C. Gull informs me that ...". Photographic illustrations, although welcome, can only be accepted if the contributor is willing to pay for their reproduction.

An author wishing to introduce a new name or describe a new form should append *nom., gen., sp.* or *subsp. nov.,* as appropriate, and set out the supporting evidence under the headings "Description", "Distribution", "Type", "Measurements of Type" and "Material examined", plus any others needed.

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CORRESPONDENCE

Correspondence about Club meetings and other matters not mentioned above should go to the Hon. Secretary, R. E. F. Peal, 2 Chestnut Lane, Sevenoaks, Kent TN13 3AR.

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British Ornithologists' Club

Edited by
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Volume 104 No. 2 June 1984

FORTHCOMING MEETINGS

Tuesday, 3 July 1984 at 6.20 p.m. for 7 p.m. in the Senior Common Room, South Side, Imperial College, Prince's Gardens, London, S.W.7, **Dr. Andrew Richford,** lately of the Edward Grey Institute, will speak on **Black Vultures in Majorca.** Those wishing to attend should send their acceptance with a cheque for £6.90 a person to reach the Hon. Secretary at 2 Chestnut Lane, Sevenoaks, Kent TN13 3AR (telephone Sevenoaks (0732) 450313) not later than first post on Thursday, 28 June.

Tuesday, 18 September 1984 at 6.20 p.m. for 7 p.m. at the same venue, **Mr. A. J. Prater,** widely known for his studies of estuary and shore birds, will speak on **Waders.** There will be a buffet supper and those wishing to attend should send their acceptance with a cheque for £4.80 a person to reach the Hon. Secretary (address above) not later than first post on Thursday, 13 September.

Tuesday, 20 November 1984 Dr Clive Catchpole will speak on **Evolution of Bird Song.**

Tuesday, 11 December 1984 Dr Ian Newton will speak on **Recent Studies of Sparrowhawks.**

Tuesday, 15 January 1985 Dr. A. G. Knox will speak on **Crossbills.**

March and May 1985 Speakers being arranged.

Tuesday, 2 July 1985 Dr. Brian Wood will speak on **Waterfowl Conservation and Wetland Management in Tunisia and Algeria.**

COMMITTEE

B. Gray (*Chairman*)
R. E. F. Peal (*Hon. Secretary*)
Dr. J. F. Monk (*Editor*)
D. Griffiin
D. R. Calder
Revd. G. K. McCulloch, O.B.E. (*Vice-Chairman*)
Mrs. D. M. Bradley (*Hon. Treasurer*)
P. J. Conder, O.B.E
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BRITISH ORNITHOLOGISTS' CLUB

Vol. 104 No. 2 Published: 20 June 1984

ANNUAL GENERAL MEETING

The Annual General Meeting of the British Ornithologists' Club was held at Imperial College, London, S.W.7 on Tuesday, 22 May 1984 at 6 p.m. with Mr. B. Gray in the Chair. Twelve Members were present.

The Minutes of the Annual General Meeting held on 17 May 1983 (*Bull. Brit. Orn. Cl.* 103:33) were approved and signed by the Chairman.

The Report of the Committee for 1983 was presented; on the proposal of Mr. P. Hogg, seconded by Professor S. Somadikarta, it was unanimously approved that the Report be received and adopted. The Accounts for 1983 were presented and the Hon. Treasurer explained that the main reason for the very satisfactory increase in the excess of income over expenditure had been the exceptionally large sales of *Bulletin* back numbers, which were expected to fall back to a much lower amount in the current year. On the proposal of Mr. P. J. Conder, seconded by Mr. R. A. N. Croucher, the Accounts for 1983 were unanimously received and adopted.

The Editor reported that the waiting time for publication of papers remained at 6 to 9 months, which was about the minimum practicable with quarterly publication. He added that the cost of printing photographs had been greatly reduced by a change in methods used.

There being no nominations additional to those of the Committee, the following were declared duly elected:

Honorary Treasurer:	Mrs. D. M. Bradley (re-elected)
Honorary Secretary:	Mr. R. E. F. Peal (re-elected)
Committee:	Mr. D. R. Calder (*vice* Mr. R. A. N. Croucher, who retired by rotation and was ineligible for re-election)

The following resolution, proposed by the Committee as a special resolution, moved by Mr. P. J. Conder and seconded by the Hon. Secretary, was considered and passed unanimously:—

That Rule (1) be amended by the deletion in the first sentence of the words ONE FURTHER TERM and the substitution in place thereof of the words ADDITIONAL TERMS.

The Meeting closed at 6.15 p.m.

The seven hundred and fifty-second Meeting of the Club was held in the Senior Common Room, South Side, Imperial College, London, S.W.7 on Tuesday, 6 March 1984 at 7 p.m. The attendance was 20 Members and 9 guests.

Members present were: B. GRAY (*Chairman*), P. J. BELMAN, Mrs DIANA BRADLEY, P. A. BROWN, P. J. CONDER, R. A. N. CROUCHER, J. H. ELGOOD, Revd. T. W. GLADWIN, D. GRIFFIN, R. H. KETTLE, J. KING, Dr A. G. KNOX, Revd. G. K. McCULLOCH, Dr J. F. MONK, A. G. MOORE, R. E. F. PEAL, P. J. SELLAR, Revd. Dr W. SERLE, S. A. H. STATHAM and N. H. F. STONE.

Guests present were: P. M. J. ESPIN, Mrs SUSAN FUCHS, Mrs J. M. GLADWIN, T. GOWER, Mrs ISABEL McCULLOCH, K. M. MORTON, N. PICOZZI, J. A. RANDALL and T. SPRUELS.

Mr Philip Belman spoke on the Greenland White-fronted Goose (*Anser albifrans flavirostris*) and described recent work by the Greenland White-fronted Goose Study in Greenland in summer and in the British Isles in winter. His address, which was illustrated by colour slides, especially of the birds and the habitat in Greenland, was greatly appreciated by members and their guests.

Income and Expenditure Account for the year ended 31st December 1983

	1983 £	1983 £	1982 £	1982 £
INCOME				
Subscriptions Received				
Members Subscriptions	2,604		2,324	
Subscribers	3,001	5,605	2,734	5,058
Donations Received		25		24
Investment Income				
Stevens Bequest Fund	152		152	
Deposit Interest	1,099		1,057	
Barrington Trust Fund	48	1,299	42	1,251
Rent Received				
Property Clovelly, Tring	1,560		1,300	
Less: Repairs and Insurance	77	1,483	40	1,260
Income Tax Recovered				
Deeds of covenant	207		197	
Other	32	239	15	212
Sales of Bulletin—Back Numbers		2,419		821
		11,070		8,626
Meetings—Income	1,135		1,141	
Expenditure	1,199	(64)	1,237	(96)
		11,006		8,530
EXPENDITURE				
Printing and publication of Bulletin	4,343		4,271	
Separates	386		334	
	4,729		4,605	
Less: Authors' costs	261		379	
	4,468		4,226	
Postage of Bulletin	514		407	
Publication and Distribution Costs re Current Issues of Bulletin	4,982		4,633	
Re-printing Bulletin back numbers	420		281	
Publicity Expenditure	125		35	
Printing, Postage and Stationery	338		360	
Telephone	32		45	
Insurance	57		25	
Notices of Meeting	52		54	
Audit and Accountancy Charges	90		90	
Bank Charges	—		5	
Miscellaneous Expenditure	51	6,147	35	5,563
Excess of Income over Expenditure		£4,859		£2,967

Balance Sheet as at 31st December 1983

	1983 £	1983 £	1982 £	1982 £
General Fund				
Balance at 31st December 1982	8,019		5,052	
Add: Excess of Income over Expenditure	4,859	12,878	2,967	8,019
Trust Fund—F. J. F. Barrington Legacy				
Balance at 31st December 1982		445		445
Stevens Bequest Fund				
Balance at 31st December 1982	2,256		100	
Add: Proceeds from sales during year	—	2,256	2,156	2,256
		£15,579		£10,720
Represented by:—				
Stevens Bequest Fund Investment				
£2,101 10¼% Exchequer Stock 1995 at cost		2,019		2,019
Barrington Trust Fund Investment				
£880 5½% Treasury Stock 2008/12 at cost		445		445
Current Assets				
Stock of Bulletin—Nominal Value	1		1	
Cash at Banks—Current Account	458		409	
Post Office Giro Account	545		686	
Deposit Account	4,351		2,608	
National Savings Bank	10,026		7,786	
	15,381		11,490	
Less: Current Liabilities				
Subscriptions received in advance—Members	221		268	
Subscribers	354		939	
Sundry Creditors	1,691		2,027	
	2,266		3,234	
Net Current Assets		13,115		8,256
		£15,579		£10,720

Accountants' Certificate

We have prepared the attached Balance Sheet as at 31st December 1983 and Income and Expenditure Account for the year then ended from the books, vouchers and information presented to us and certify that they are in accordance therewith.

Hereford House, Hereford Gardens,
Pinner, Middlesex HA5 5JR 21st March, 1984

Searle and Company
Chartered Accountants

We approve the attached Balance Sheet and Income and Expenditure Account for the year ended 31st December 1983 and confirm that to the best of our knowledge all transactions relating to the Club have been recorded.

B. GRAY *Chairman*
DIANA BRADLEY *Treasurer*

22nd May 1984

The seven hundred and fifty-third Meeting of the Club was held in the Senior Common Room, South Side, Imperial College, London, S.W.7 on Tuesday, 22 May 1984 at 7 p.m. The attendance was 27 Members and 23 guests.

Members present were: B. GRAY (*Chairman*), P. J. BELMAN, Mrs. DIANA BRADLEY, D. R. CALDER, R. D. CHANCELLOR, P. J. CONDER, R. A. N. CROUCHER, J. H. ELGOOD, Sir HUGH ELLIOTT, A. GIBBS, Dr. J. G. GREENWOOD, D, GRIFFIN, P. HOGG, Revd. G. K. McCULLOCH, C. J. MEAD, Mrs. U. V. MEAD, Dr. J. F. MONK Miss TERUYO OBA, J. G. PARKER, R. E. F. PEAL, R. C. PRICE. R. E. SCOTT, P. J. SELLAR, Prof. S. SOMADIKARTA, S. A. H. STATHAM, N. H. F. STONE and Lieut.-Col. T. C. WHITE.

Guests present were: Dr. S. AUTGAERDEN, A. BOOSEY, Miss J. B. BRACEY, Dr. A. E. CHANDLER, J. CHAPPELL, Mrs. P. CHAPPELL, D. M. COUZENS, Miss V. COX, S. L. CZAPSKI, Mrs. C. ELLIS, H. FOSKETT, Mrs. B. M. GIBBS, P. HAYMAN, I. LEWIS, Miss E. McCULLOCH, G. P. McCULLOCH, Mrs. I McCULLOCH, Dr. AMICIA MELLAND, Mrs. ELIZABETH PEAL, Mrs. E. A. SCOTT, C. STILEMAN, Miss J. SUNTER and Miss S. M. D. YERBURGH.

Mr. Peter Hayman spoke on "Raptors and Identification Techniques" and illustrated his address with a number of his drawings of raptors and waders. He spoke especially on the need to consider shape and proportions and their effects on the overall appearance of a bird to be identified, rather than to concentrate unduly on the pattern of plumage colouring.

Recent records of the Ostrich *Struthio camelus* in Egypt

by Steven M. Goodman, Patrick F. Houlihan & Ibrahim Helmy

Received 19 August 1983

Nicoll (1919) and Meinertzhagen (1930) respectively were of the opinion that the Ostrich *Struthio camelus* had been extinct in Egypt for at least 70 and 100 years. Excluding the recent work of Brown *et al.* (1982), these views have been reiterated in every work which has dealt with the distribution of the Ostrich in North Africa, and in spite of a record to the contrary being published in 1959 (see below), it is still generally held that the bird is extinct in Egypt (Vaurie 1965, Cramp & Simmons 1977, Snow 1978). For this reason, the collection of an adult ♂ Ostrich, a chick and 2 fresh whole eggs in Egypt in 1967, in addition to a number of recent records, is of considerable interest. The purpose of this paper is to describe the collected specimens, their subspecific identity, and to summarize briefly Ostrich records in Egypt since the 18th century. The specimens described herein are in the Field Museum of Natural History (FMNH), Chicago, and were collected by a field team, which included Dr. Dale Osborn & IH, under the direction of Dr. Harry Hoogstraal (HH), Medical Zoology Department, NAMRU-3. Wherever possible we have used the gazetteer of Osborn & Helmy (1980) for Egyptian locality spellings and coordinates.

Description of recent specimens

The adult ♂ specimen was collected on 20 February 1967, along a tributary of Wadi Hareitra (22°05′N, 36°13′E), west-southwest of Gebel Elba, Sudan Administration, Egypt (FMNH 279307, HH original number 8185). The head, upper two thirds of the neck, sides of belly and thighs are naked except for a sparse white down, the forehead has a distinct horny shield, the body feathers are black, and the wings and tail white. No information is available on bare-part colours.

Table 1

Comparison of the body measurements of a collected *Struthio camelus* specimen (1967) with *S.c. camelus* and *S.c. syriacus*[1]

Specimen or reference	Bill from gape (mm)	Bill from front of skull (mm)	Tail (mm)	Tarsus (mm)
FMNH 279307 (see text)	141	80	510	485[2]
Bannerman (1930) *camelus* ♂	138	—	490	450
Rothschild (1919) *camelus* ♀	140	83	540	530
syriacus ♂	132	75	330	400
syriacus ♀	111	65	440	400
Vaurie (1965)[3] *camelus* (n=7)	—	—	—	450–530 (490)
syriacus (n=6)	—	—	—	390–465 (420)

[1]All birds adults and, unless noted, n=1 or not specified.

[2]Approximate.

[3]Ranges and means (in parentheses).

In his description of *S. c. syriacus*, Rothschild (1919) found this race virtually identical in plumage and bare-part colour to *S. c. camelus*, but distinctly smaller. *S. c. massaicus*, which presently inhabits portions of Kenya and Tanzania, is similar in size to *camelus* but lacks the distinctive shield on the forehead (Rothschild 1919, Snow 1978). In Table 1 we compare several measurements of *camelus* and *syriacus* from various sources with those of the collected specimen. Based on plumage, body measurements, and forehead shield, the collected specimen is clearly referable to *camelus*. Other measurements (mm) from the specimen not given in Table 1 include: wing 460 (approximately); longest toe without claw 165; the width of bill at posterior edge of nostril 49 and anterior edge of nostril 55. A partial skeleton of leg and toe elements (FMNH 107758), as well as the heart preserved in liquid (FMNH 107758), were saved.

The young bird was collected on the same day and locality as the adult mentioned above (FMNH 279306, HH original number 8186). Measurements (mm) include: bill from gape 55; exposed culmen (bill from anteriormost feathering on forehead) 29; width of bill at posterior edge of nostril 17; tarsus 90; tail 31.

Table 2

The egg dimensions of the two collected specimens of *Struthio camelus* (1967) compared with those of *S.c. camelus, syriacus* and *massaicus*

Specimen or subspecies	Greatest length (mm)	Greatest breadth (mm)
HH 8187 (see text)	165	142
HH 8188 (see text)	167	143
camelus (n=48)[1]	142–175 (158.5)	120–145 (131.0)
syriacus (n=13)[1]	135–148.5 (142.8)	111.5–122 (115.8)
massaicus (n=28)[1]	142–165 (154.5)	120–142 (127.5)

[1]Measurements of subspecies after Schönwetter (1960), ranges and means (in parentheses).

Two whole fresh eggs were collected on 14 February 1967 at Wadi Yoider (22°17′N, 36°18′E), north of Gebel Elba, Sudan Administration, Egypt (FMNH 3480, HH original numbers 8187 & 8188). The maximum length and breadth of each egg are given in Table 2, and are compared to those of *camelus, syriacus* and *massaicus*. The reason *massaicus* is included is that Moreau (1934), using Lowe's identification (presumably by pore pattern), claimed that some Ostrich eggshell fragments of indeterminable age, found north of Kharga Oasis, were referable to *massaicus*, while in addition eggshell fragments from Libya have been identified as *massaicus* (Bundy 1976). The measurement overlap is considerably less between *camelus* and *syriacus* than between *camelus* and *massaicus,* with *camelus* generally the largest. One of the collected eggs (HH 8188) is longer than the largest *massaicus,* whereas the other (HH 8187) is at the upper extreme length measurement of *massaicus* (Table 2). Based on size, the 2 collected eggs are referable to nominate *camelus*. We have not used pore pattern characters to identify the eggs to subspecies, because variation in size was sufficient for identification; but more importantly, the use of this character is not always reliable on the subspecific level (Sauer 1972). The fragments from Libya and the Western Desert of Egypt identified as *massaicus* need to be re-evaluated, but before this is done, the variation in pore pattern within the subspecies needs to be thoroughly studied.

Records of the Ostrich in Egypt

Western Desert. Pococke (1743) and Geoffroy Saint-Hilaire (1799) described the Ostrich as common in the mountains southwest of Alexandria. Sonnini (1800) saw fresh tracks in the desert near Bahariya Oasis and further reported that Ostriches were hunted in the country for plumes and fat. Browne (1806) found tracks between Alexandria and the Siwa Oasis in 1792, and in 1821 flocks of 10–15 individuals were observed in the same region (Minutoli 1824). In c. 1909, a Bedouin told Nicoll (1919), that Ostriches continued to nest in the Western Desert (locality not specified) until around 1844. Heuglin (1856: 305) stated (my translation), "I have never observed Ostriches in the Libyan Desert or in Middle Egypt north of Cairo". However, in his definitive work on the birds of northeast Africa, Heuglin (1873: 928) wrote (my translation), "The Ostrich still lives around the oases of Middle Egypt, from the Faiyum south and westwards to the oases of El Kharga and El Dakhla", although he provided no supporting evidence. Presumably Heuglin's modified view resulted from evidence of the Ostrich in the Western Desert coming to him after 1856, but whether the records were personal observations or reports of others is impossible to say. It was not until 1935 that the Ostrich was again reported in the Western Desert, when Al-Hussaini (1959) was informed that a bird had been caught at "Abou-al-Oql" (not located), somewhere midway between the Kharga and Dakhla oases. To our knowledge, this is the last published record of this species in Egypt west of the Nile.

Eastern Desert (excluding the extreme southeast). On 22 April 1816 Burckhardt (1822) observed 2 Ostriches between Cairo and Suez at "El Mograh". While describing the Egyptian avifauna, Russell (1842: 338) stated that the Ostrich "occasionally occurs in the extensive desert which borders the western shore of the Red Sea. . . ." Heuglin (1873) in 1854 encountered a group of 50–60 Ostriches, mostly young birds, near Korosko (22°36'N, 32°20'E), south of Aswan. In 1972 an Ostrich followed a camel caravan from the Sudan to (New) Ballana (24°23'N, 32°54'E), where it was shot by a Nubian hunter, stuffed and placed on top of his house (photographed by IH). In February 1975 IH found Ostrich tracks near Barqet Tokham (23°35'N, 33°25'E), c. 75 km southeast of Aswan. SMG learned in late March 1983 from the captain of the Aswan Frontier Patrol that he saw a ♀ Ostrich with 8 chicks in March 1982 in Wadi el Kharit (24°26'N, 33°03'E), c. 60 km northeast of Aswan.

Extreme southeast of Egypt. Heuglin (1859) considered Port Berenice (23°55′N, 35°28′E) the Ostrich's northern limit in Egypt east of the Nile. Linant de Bellefonds (1868) found them to be common at Wadi Daffeti (22°13′N, 34°11′E) in 1831. Schweinfurth (1865) saw them in early 1865 in the desert north of Gebel Elba, and further noted that a local tribe, the Bischarin, did not hunt Ostriches. In 1891, Floyer (1893) found it at Wadi Naam (23°18′N, 34°59′E) and perhaps at Wadi Natash (24°20′N, 34°02′E). (It is interesting to note that Wadi Naam means "Ostrich Valley" in Arabic.) Fahmy (1936) stated that the Ostrich could sometimes be found in the desert north of Gebel Elba, but gave no localities, numbers nor dates. In 1962, the late Dr. Vivi Täckholm, Botany Department, Cairo University, reportedly saw Ostriches between Gebel Elba and the Red Sea Coast (Darby *et al.* 1977). While travelling north of Halaib, east of Gebel Elba, Schreider & Schreider (1965) also observed this species.

Early in 1979, an expedition of Egyptian scientists visited the southeastern portion of Egypt and observed Ostriches at several localities (Amer *et al.* 1980). They learned from a geologist whom they met, that he had shot 2 Ostriches at Wadi Naam in October 1979; and on 24 January 1979 they saw Ostrich tracks at Wadi Gemal (24°40′N, 35°06′E), northwest of Port Berenice. When at Bir Shalatein (23°08′N, 35°36′E), near the Red Sea Coast, they observed 2 separate flocks of Ostriches, one containing 6 adults and 10 young, the presence of the latter indicating that breeding had been recent and presumably in the general vicinity of Bir Shalatein. Amer *et al.* (1980) also reported this species near Wadi Diib (22°28′N, 36°06′E), northeast of Gebel Elba.

Employees of the talc mine near Gebel Hamata (24°12′N, 35°00′E) killed 6 Ostriches during the winter of 1961–62 (Dr. Mohammed Kassas) and another 2 in October 1978 (IH) in the general vicinity of the mine.

Other recent records include: tracks were observed in 1966 at Bir Murra (22°32′N, 33°54′E), north of Wadi Allaqi (IH); in February 1973 one was reported killed in Wadi Abu Ghusun (24°27′N, 35°12′E) (IH); in April 1981 tracks were noted at Hamra Dom (22°39′N, 35°39′E) (IH); in April 1981 one was captured, photographed and released at Wadi Diib (IH); on 26 March 1983 1 adult ♀ and 1 immature ♂ were observed together in Wadi Hareitra and the weathered bones of at least 4 individuals were found in a hunter's camp (SMG); and on 29 March 1983 the remains of 2 Ostriches were found on the beach 4 km north Abu Ramad (22°21′N, 36°27′E)—the birds had presumably been transported to the sea from the wadis north of Gebel Elba for skinning (SMG).

Discussion. On the basis of the accounts of 18th and 19th century travellers in Egypt, it is apparent that up until the second quarter of the 19th century, the Ostrich had an extensive distribution within the country. By around 1890, however, the bird had apparently disappeared from both the Western and Eastern deserts of Egypt. Early this century, before or during 1935 (Al-Hussaini 1959), the Ostrich began to repopulate the Western Desert, while the more recent records from the Gebel Elba region are from the Eastern Desert, suggesting that the species must have recolonized the country at least twice (assuming of course that Ostriches do not swim across the Nile). The birds entering the Western Desert might have come from the Darfur Province, Sudan, where a population still exists (see Wilson 1976).

Those on the eastern side could have come from the Kassala Province of Sudan, where Beckinsale (1920) in 1920 saw a group of 20, near Barameiyu Station (18°35′N, 36°46′E), south of Port Sudan. The possibility of the bird re-entering the Western Desert from Libya seems unlikely, for all recent reports of Ostrich in Libya are from its extreme southeastern corner along the Chad border (Toschi 1969).

A different explanation of its re-discovery in Egypt could be that the Ostrich has, in fact, always been present in Egypt in small isolated areas, and the hiatus of records between the last quarter of the 19th and early this century reflects merely a lack of observers rather than that of actual birds. However, several scientific expeditions visited these areas (particularly the Western Desert) in these intervening years, and they did not report any signs of Ostrich nor learn of their presence through the observant local Bedouins.

An Ostrich farm was established at Heliopolis, just outside Cairo, sometime around 1880 and was in existence at least until 1913 (Sclater 1895, Mercier 1898, Walter 1898, Raveret-Wattel 1913). In 1895 the farm had c. 1400 Ostriches, composed of the subspecies *camelus* and *molybdophanes* (Sclater 1895). One cannot rule out the possibility that some of these birds could have escaped and were able to reach the southeastern portion of the country. However, this seems unlikely, for the birds would have had to travel over 800 miles through the desert and across the Red Sea Mountains under rather rigorous conditions, or along the Red Sea Coast or in the Nile Valley where they would almost certainly have been observed. Further, this would not explain their appearance in the Western Desert, on the other side of the Nile.

It is impossible to estimate the number of wild Ostriches currently living in Egypt, but their stronghold appears to be in the Gebel Elba region. In order to secure this species' future in Egypt, measures need to be taken to relieve the pressure induced by human persecution. Perhaps this can best be achieved by setting aside areas where this species is known to nest as national wildlife refuges, and where general hunting would be unlawful.

Acknowledgements. We would like to thank Drs. John W. Fitzpatrick and David Willard (FMNH) for allowing us access to the Ostrich specimens under their care. Drs. Harry Hoogstraal and Robert W. Storer provided useful comments on an earlier draft. The Frank M. Chapman Memorial Fund of the American Museum of Natural History financed SMG's 1983 field work in southeastern Egypt and the Egyptian Wildlife Service, particularly Dr. Gamil Abdel Mowla Atta, provided logistic support. The work was supported by the Naval Medical Research and Development Command, National Naval Medical Center, Bethesda, Maryland, U.S.A. The opinions and assertions contained herein are the private ones of the authors and are not to be construed as official or as reflecting the views of the Department of Navy or of the naval service at large.

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The Tahiti Flycatcher *Pomarea nigra tabuensis* in Tonga; rejection of an 'extinct' subspecies

by David Todd

Received 24 September 1983

The Kingdom of Tonga, which lies in the South Pacific to the east of Fiji, has only a limited avifauna. Even so, only one of the indigenous species of bird, the Tahiti Flycatcher *Pomarea nigra,* is considered to have become extinct since the arrival of Europeans (King 1978/79). The sole authority for this species' former presence in Tonga is J. R. Forster, the naturalist on Captain Cook's second voyage to the Pacific.

In 1773, J. R. Forster spent 3 days ashore on Tongatapu, the main island of Tonga. In an entry in his journal dated 4 October, he noted that "We shot . . . a black & white Flycatcher, . . . quite new" (Hoare, in press). This specimen has unfortunately been lost, but Forster provided a detailed description of it (Forster 1844). Following the description he added that, after careful consideration, he now believed that it belonged to the same species as birds he had collected on Tahiti less than a month before his visit to Tonga. He named the species *"Muscicapa atra"*. The birds from Tahiti were all black and these he decided must be males, while the pied bird from Tongatapu and another from Tahuata in the Marquesas he assumed were females. As the specimen from Tongatapu is missing, it has not been possible to check Forster's identification of this bird directly. However, his specimens from Tahiti and Tahuata have since been identified respectively as adult Tahiti Flycatchers and a female Marquesas Flycatcher *Pomarea mendozae*.

Less than 4 years after Forster's visit, William Anderson, the naturalist on Cook's final voyage, stayed for over a month on Tongatapu. As he found no *Pomarea* flycatchers during this long stay, it is assumed that the species found by Forster had already become extinct there. No species of *Pomarea* has ever been reported from any of the other islands in the group, even though large rewards were offered during the 19th century for a single specimen (Layard 1876). Layard noted that the *"very* old natives" said that they remembered the bird and called it "Moho". However, this report was based on a misunderstanding, since *moho* is the Tongan name for the Spotless Crake *Porzana tabuensis,* an elusive species which happens to be as dark as a 'male' *Muscicapa atra*. Despite the loss of the only specimen and the lack of further sightings, Mathews (1929) renamed Forster's *M. atra* from Tongatapu *Pomarea nigra tabuensis.*

It is doubtful whether Forster ever saw a Tahiti Flycatcher in Tonga. His description of the "black & white Flycatcher" shot on Tongatapu accurately portrays in every detail a male Polynesian Triller *Lalage maculosa tabuensis,* which, although it belongs to the Campephagidae rather than the Muscicapidae, bears a superficial resemblance to the *Pomarea* flycatchers. J. R. Forster's description (1844: 171-2), translated from the Latin, is as follows:—

Muscicapa atra F. Female.

> Flycatcher, glossy black above, white below, with flight feathers edged with white and white tips to the rectrices.
>
> It lives on the island of Tongatapu, and is called *"Tehiki-beeoo"* and also *"Dengha-Dengha"*.

> Its body is about the size of the above, namely *M. lutea* and *atra* [the size of a Yellowhammer *Emberiza citrinella*].
>
> The bill is glossy black and notched at the tip. The nares at its base are roundish. The gullet is encircled by very small bristles. The feet are black. The crown is glossy black, the supercilia are white. The lores are glossy black. The neck and rump are ash grey. The upper lesser coverts are white spotted with black; the median secondary coverts have white tips.
>
> Flight feathers 1 – 8 are edged with white, with the hind margins spotted white; the others, 9 – 18, have the leading margins at the tip and the hind margins spotted white. There are 12 rectrices. The outer ones are bordered with white; all the rest (except those in the middle) have white tips.
>
> The rest of the body is black above, white below.
>
> After careful consideration, I believe this *Muscicapa varia* to be the female of *Muscicapa atra,* and another of this variety is found, sweetly singing, on the island of St. Christina or Weitaho [Tahuata in the Marquesas].

Some time after deciding that the bird described was a Polynesian Triller, I discovered that David Medway had independently come to the same conclusion while annotating J. R. Forster's journal for publication (Hoare, in press). While in Tonga, Forster described no other bird that could have been a Polynesian Triller, even though the species was probably common on the island. Anderson was able to collect 3 specimens in 1777, and in 1870 Gräffe described it as being the second species with regard to frequency of occurrence on Tongatapu. Although this is no longer true, Polynesian Trillers are by no means rare on the island even now. It is unlikely that Forster would not have seen such a species, and even less likely that he would have found another that would be extinct less than 4 years later.

In his description of the bird, Forster recorded two local names for the species, "*Tehiki-beeoo*" and "*Dengha-Dengha*". The usual Tongan name for the Polynesian Triller is *sikiviu* with the stress on the final 'i'. In the old orthography, this name was spelt *gikiviu,* which in 1870 Gräffe reported was pronounced "Tsikiviu". Allowing for the difficulties of spelling out a word from an unwritten language and also for slight changes in pronunciation, Tehiki-bèeoo is almost certainly Forster's version of *sikiviu.* "*Dengha-Dengha*" is equivalent to the modern *tengetenga,* which happens to be a name for the Polynesian Triller now used only on Niuatoputapu and Tafahi, 2 islands in the north of Tonga.

Specimens of the Tahiti Flycatcher have been obtained only from Tahiti and Maupiti, 2 islands in the Society Group over 2500 km to the east of Tonga. The species is now extinct on Maupiti and rare on Tahiti (King 1978/79). *Pomarea dimidiata* from Rarotonga, Cook Islands, is the only member of the genus which is found closer to Tonga, but this is still more than 1500 km away, and it is reported to survive in very small numbers (King 1978/79).

Since Forster's description so accurately described a Polynesian Triller, there can be little doubt that it was this species that he obtained on Tongatapu. As there is no other evidence to support the suggestion that a flycatcher of the genus *Pomarea* ever existed in Tonga, it would seem appropriate to treat *P. nigra tabuensis* as a synonym for *Lalage maculosa tabuensis*.

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Behavioural notes on the White-eared Barbet *Stactolaema leucotis* in Kenya

by Lester L. Short and Jennifer F. M. Horne

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The White-eared Barbet *Stactolaema leucotis* is a little known capitonid from eastern and southern Africa. One major report (Oatley 1968) covered some breeding and other aspects of its biology in Natal, the southernmost part of its range. Otherwise, there are published notes on its behaviour in captivity (Yates 1975) and casual mention of certain habits in such works as those of Moreau & Moreau (1937, 1939). We report details of its behaviour in Kenya to elucidate aspects not treated or casually treated by other authors and to present new information.

Our studies were conducted in evergreen forest at 1550–1700 m on the crest and upper west slope of the Chyulu Hills, 29 km WSW of Mtito Andei in south-central Kenya (2°47′ S, 37°56′E), 8–15 November 1982. The forest and its avifauna have been discussed by van Someren (1939). One peculiarity is the virtual absence of surface water or running streams, except immediately after rain, for the soil is volcanic and very porous. During our visit rain was plentiful, occurring daily (sometimes as often as 4 or 5 times a day), and the forest was often enshrouded in fog. The forest is more or less continuous along the crest at the southern end of the Chyulu Hills, with frequent isolated patches on adjacent slopes. It is much less extensive, but with more forest edge and isolated patches than in van Someren's time, due to cutting and grazing activities of local tribes. Common forest barbets are the White-eared Barbet and the Moustached Green Tinkerbird *Pogoniulus leucomystax,* while forest edges and the isolated patches of forest support numbers of Spot-flanked Barbets *Tricholaema lachrymosa*.

Its social habits, vocalizations, white "ear" patch and belly, and black breast make the White-eared Barbet conspicuous. We studied 3 groups on the crest of the Chyulu Hills in a much-dissected forest area c. 1 km long.

Although their areas of activity are in fact connected by forest, both trails and the configuration of intruding burnt and cut-over areas more or less isolated the 3 groups, each of which occupied a forest area of 200 x 400 m. Individuals frequently flew the 50–200 m from the forest to nearby small isolated patches of forest, the largest of which conceivably could support a pair or group of White-eared Barbets. Kenyan birds are of the subspecies *kilimensis*; 6 males weighed 53–61g (mean 57.3g), 5 females 51.5–58g (mean 54.4g).

OBSERVATIONS

Activities of the White-eared Barbets centred about the nesting (and roosting) hole, its immediate surroundings usually including a favoured perch with a good view from it in at least several directions, and fruiting (fig) trees. Nest site A was 50 m inside the edge of the forest, and consisted of a hole facing east 15 m up a dead, well-rotted tree stub broken off at 18 m, at which height the stub was 45–50 cm in diameter. Vines and lianas wound around the stub, to its top on the south side, and a tendril often used as a perch by the barbets was beside the entrance to the nest. A dense but upwardly open tangle to the east and northeast of the stub probably marked the fallen top of the tree. Two trees just south of the nest site provided perches on which interactions occurred among adults, and were used for surveillance by the barbets. Six adults roosted in the nest with at least 2 young birds that sporadically reached the nest entrance late in our stay.

Site B was 20 m inside the forest edge on a steep slope, in a double-topped, vine-covered dead stub 12 m high, the nest entrance being just below the broken top of one branch that was 30 cm in diameter at that point. Vines ceased just below the entrance, which faced southwest. The nest tree has been identified by Jan B. Gillett, of the Kenyan National Herbarium as *Tabernaemontana johnstonii* Stapf, family Apocynaceae. Two small trees with several dead branches southwest of the nest provided preening and surveillance perches for adults. Five adults were incubating at this nest.

Site C was 8 m from an open area on a dense, heavily forested and very steep slope, in a dead stub 8.5 m high, 5.8 m above ground, the entrance slightly oval from side-to-side and facing SSW. The stub was c. 36 cm in diameter at the nest, and differed from the other sites in lacking vines. Here 6 adults were incubating eggs.

These observations confirm the regular occurrence of more than merely a pair at nesting situations. Nests in the study sites, and in other cavities probably used by barbets previously, had no other excavated cavities near them, indicating the absence of colonial nesting (unlike the case in forest barbets *Gymnobucco* (Short & Horne 1983)) near them, and suggesting long use of a particular cavity by a barbet group.

These nesting sites are not directly comparable with those of Austen's birds (Oatley 1968), which nested in a lone *Erythrina* tree on his open lawn. He had but 2 adults through incubation, after which a third adult joined the pair in roosting nightly in the nest, and helped raise the young. Eight birds roosted in that nest after the 3 adults had raised 5 young. Elsewhere in South Africa Oatley noted up to 11 birds roosting in one cavity and he mentions J. Vincent having seen 17 enter a hole, but the locality was given as in "the Congo" (Oatley 1968: 12), where in fact the White-eared Barbet does not occur. At all our 3 sites the entire group (5–6 adults) roosted in the nests, both during incubation, and (in at least one case) after hatching occurred.

Oatley (1968) noted visits of a Greater Honeyguide *Indicator indicator* to Austen's nest after eggs had been laid, but with no apparent attempt to lay by the honeyguide (presumably a female, although its sex is not mentioned). We saw no honeyguides about our nests, but in a small forest patch downslope from the study area on 16 November we found 2 White-eared Barbets and a pair of Spot-flanked Barbets alternately chasing, attacking and calling at a Lesser Honeyguide *I. minor* that remained in the patch for 1 hour, despite constant attacks by one or the other of the barbets. Lesser Honeyguides often are parasitic on similarly sized barbets, e.g. *Lybius torquatus* and *L. leucocephalus* (Short & Horne 1979).

The adult White-eared Barbets were always in evidence round the nests where incubation was in progress, and at least one barbet was usually in or near the nest where barbet young were being fed. That surveillance is important is indicated by the shrieking alarm call given by an adult spotting a potential predator, the call bringing the other adults silently to the nest site, and causing the young to become silent. Predators drawing this response on 3 occasions were an African Goshawk *Accipiter tachiro* cruising through the forest (which then pursued a barbet with no success), and in 2 cases, a Crowned Eagle *Stephanoaetus coronatus* that once perched in a favourite feeding tree of the barbets, drawing repeated calls for over a minute before it flew off.

Adults foraged for figs and other fruits, but also hawked for insects occasionally, and not only to feed the young. Yates (1975) had previously observed that a captive White-eared Barbet frequently took spiders and flying hornets, bees, and other insects that entered its cage, besides fruit. We frequently saw foraging White-eared Barbets moving slowly along moss-draped limbs of trees, apparently seeking insects.

As Moreau & Moreau (1937) noted, the White-eared Barbet is pugnacious, and does not tolerate close approach by other species, attacking and usually driving off or supplanting species their size or smaller. The White-eareds vocally responded occasionally to songs of the 2 sympatric barbets. One once supplanted a perched Spot-flanked Barbet, and we twice saw a White-eared chase a Spot-flanked Barbet and, once, a Moustached Green Tinkerbird, but we do not know what had transpired prior to our observations. Members of a group when close to one another may engage in allopreening (seen 14 times). Comfort movements include direct scratching, and stretching of one wing and the leg on the same side, then those of the other side or both wings simultaneously up over the body.

Vocalizations

S. leucotis gave no song as such. The major vocalization is a *skreek, zzheep,* or *kyeek,* aptly described by Moreau & Moreau (1932: 302) as "a harsh uninflected and undistinguished squawk" and given under circumstances similar to those in which Grey-throated Barbets *Gymnobucco bonapartei* (pers. obs.), and at least 2 of the other 3 species of *Gymnobucco* (see Chappuis 1981) utter their loud *pyew* call. It may be uttered singly or in loose series (e.g. a *skreek-zeep-zeep-*) during fights or when there is a disturbance (e.g. arrival of a group of hornbills at a feeding tree used by the barbets), or in alarm, as noted above. Other vocalizations mark interactions of varying intensity: 1) a loud, honeyguide-like trill, a *brdddiititit* or *triiddddddt* resembling rather closely the rattling trills of *G. bonapartei* (pers. obs.) and which at high intensity may be compounded with *skreek*-like notes, a *zzeep-zzeep-ddddt, ddddeet-it, bddd-eeee-eet,* or *ddd-eeep-dd-d-dttt*; 2) lower *skreek*-like calls, a *pyeep*; 3) low trills or chittery calls, a *skree-eee-yi-ii-ii-ii* or *nyi-ii-ii-ii* or *d-dddtchip*; 4) low, buzzy *bdddzzzzzz* or *zzz-zzz-zzip* notes; 5) low humming *mmmmmm* notes, and 6) grating sounds stimulated by playbacks among 3 adults rendered *dd-pddeeddd-skree-ee-ee-chewp- chewp*. The last 3 sets of vocalizations recall similar ones of the Green Barbet *S. olivacea olivacea*. Nestlings utter a *wi-wi-wi-wi-* begging call, which can be a louder *chip-ip-ip-ip*.

Bill wiping is a common display of seemingly agitated birds, resulting in low mechanical sounds that are audible at 20 m, hence to interacting birds during encounters. Movement during interactions is marked by loud rustling wing noises that surely function aggressively, e.g. when an incoming bird announces its intention to supplant another. Finally, on changeover during incubation we thrice observed the incoming bird to drum-tap, *ddd,* softly with its bill on a stub near the hole before flying to it, although low trill or skizzing *t-ch, t-ch, t-ch--* notes at the entrance were more usual at changeover. So, in fact this species uses a woodpecker-like tapping signal at times.

Visual displays

Those observed most commonly were bill wiping, described above, flicking of the wings during interactions, and side-to-side swinging of the body and especially the tail, also during interactive encounters. Aggressive birds sidling on foot along a branch assume a horizontal position, pointing the bill at an antagonist, or possibly opening the bill widely in a gape (the inside of the bill is blackish and the tongue pink). Meetings at the nest are marked by diverse interactions, quite likely relating to the status of the birds within the group. Sometimes there is bowing, and swinging of the body and tail. One especially excited incoming bird after so displaying at the hole, took off in chase of the adult which flew out, instead of entering the nest. Other interactions away from the nest include wing flicking, and involve first one then the other bird hopping over each other, turning and facing its antagonist, with tail swinging and bill wiping as it supplants it. Tail cocking occurs at times, and together with tail swinging is one response of some birds to playback of *skreek* calls. Once an incoming bird, at a nest presumed to contain eggs, cocked its tail; the bird inside called *skreek*, at which the second bird quivered its wings and called *dddatt*. During intense interactions, and rarely also in changeovers, one bird spreads out its white feathers "like white wisps to the sides" (from field notes, LLS), also spreading out its rump and flank feathers to make those areas conspicuous.

Soliciting was observed only 4 times, one bird drooping its wings, flipping them up and down and giving a fast buzzy call ending in *yip* notes. Courtship feeding was observed once at the nest containing young; the *adult* which came to change over fed an adult which came to the entrance and then *both* entered the nest together. Young birds when they climb to the nest entrance and call are conspicuous by virtue of their yellow-based, dark-tipped bill, perhaps adding visually to the vocal begging display. Sometimes birds approaching the nest do so in a long gliding flight, possibly a display. A definite flight display seen twice was a circular flight by 2 birds around and around the nest containing young, whether by the breeding pair or not is uncertain. A flutter flight display is seen occasionally, with wing sounds audible at a considerable distance, when one bird flies in to supplant another, the fluttering giving way to wing flicking as the incoming bird alights.

These visual displays mainly closely resemble those known for the Green Barbet (Short & Horne 1980), although many of them (tail cocking, bowing, bill wiping) are widespread among capitonids such as species of *Gymnobucco, Tricholaema* and *Lybius*, as well as of *Stactolaema*. However, the circular flight display of the White-eared Barbet is as yet unknown in other barbets.

Incubation

Observations of incubation at sites B and C in continuous periods of 20 minutes or more on 4 days (169 minutes total) showed 14 incoming or outgoing events at intervals of 3–24 minutes, one per 12 minutes. During a dozen additional occasions of interrupted or brief observations near these nests, there was always one bird present in the nest (and probably at all other times). Sometimes a second bird would enter, and at other times there would be a changeover, one departing and the other entering the nest. At times as many as 3 individuals were in the nest at once during the day. Playback of various vocalizations drew an incubating bird to the entrance, and twice, apparently, briefly enticed it out of the nest, to which it quickly returned; at other times when a bird flew out and away immediately on hearing the playback, we had reason to believe (from subsequent events, or the appearance of a second bird briefly from inside the nest entrance) that one bird was still in the nest. The rather short intervals of incubation probably reflect the sociality of this barbet and the actual numbers of adults incubating. The changeover rate renders the nest site more conspicuous because of frequent activity about the hole, but any possible resulting predation is offset by the presence of one or more adults within and about the nest at all times. These sparse observations are the first data on incubation and changeovers in this barbet.

The incubation period has been estimated at 14–18 days from Austen's observations (Oatley 1968), but accurate data are needed. The clutch is 2–6 eggs, apparently 4–6 in southern Africa and with fewer eggs in East Africa; young in the nest at site A certainly numbered no more than 3, and Moreau & Moreau (1937) found only 2 young in a Tanzanian nest.

Feeding of young

We observed feeding of young at site A for 514 minutes in 6 periods of 30–250 minutes during parts of 3 days in the middle of the nestling period. Austen's observations (Oatley 1968—360 minutes over 4 days) were both early and late in the nestling period. Moreau & Moreau (1937) reported 30 berries fed to 2 young during 90 minutes in northeastern Tanzania. We were too far distanced usually to determine the food brought to the young.

From 11.40–15.50 on 10 November we saw 64 apparent feeding visits by the 6 adults, respectively at 10, 18, 17 and 18 times per hour (average 15.4 per hour). Visits for feeding were as brief as 7 sec, but some birds remained in the nest until replaced by another feeding adult, or even longer. Those birds flying to the nest and appearing to leave on their own after feeding (43 of 60, or 72%) averaged 37.3 sec in the nest, whereas birds apparently remaining in the nest until another adult "forced" them out stayed for 74 sec on average; though of course we could not be certain that the bird leaving was the one which had immediately preceded the newcomer to the nest, for at times there were 2 or more birds within the chamber for a period. In contrast, in late afternoon, when adults presumably forage for themselves, between 16.12 and 16.51 the same day, only 4 feedings occurred, corroborating Oatley's (1968) report from Natal, where there are 2 hours longer daylight, but where probably more young are raised per nest.

Next day there were 23 feeding visits between 10.50 and 11.30, when as many as 3 adults spent a considerable time together in the nest after feeding, and only 10 times did one bird leave within 45 sec of the arrival of another with food. In the other cases, 60–300 sec elapsed before one bird departed. Between 15.38 and 16.29 on 14 November there were 21 feeding visits (24.7 per hour), with rapid turnover again (21.5 sec per "feeding visit"). Thus, the hourly feeding rate varies greatly, from 10–25 per hour, the overall average of 17.6 being rather greater than the 14 in Natal (Oatley 1968). On 11 November 2 adults arrived at site A with food at 18.07, and remained in the nest for roosting. The other 4 adults arrived, whether with or without food could not be determined, between 18.10 and 18.14, all 6 adult birds thus going to roost within less than 7 minutes.

Many times the barbets leaving stopped to perch, preen, or even feed near the nest. On at least 3 occasions the same barbet fed twice successively, obtaining food about the nesting tree by flycatching or by gleaning. Others, on at least 12 occasions, obtained food by hawking near the nest, or by gleaning in vines or, twice, from the top of the stub in which the nest was situated. Thus, food is obtained rather opportunistically (cf. Yates 1975), and not always from so far away as Oatley (1968) suggested. At times all the birds seemed to arrive from the same direction, all from the direction of fruiting fig trees.

Food was carried in the bill, and included berries and small, undetermined particles. No large fruits were obtained. Large insects were visible on some 20 occasions, probably orthopterans, some perhaps armoured. These were beaten against a branch or the stub before being carried to the nest.

Nest santitation

We were generally too far away to discern faecal material carried from the nest, because of bad light, or the fact that the barbets often sped out of the nest with no chance for close observation, or because of the commotion surrounding the meeting of incoming and outgoing barbets. Nonetheless, in 19 cases obvious faecal material was seen in the bill of a barbet pausing at the nest entrance in good light. Oatley (1968) reported Austen's observations of 28 removals of faecal material in 74 feedings, a rate of 38%.

Gonadal development

On 15 November 2 adults were obtained from a nesting group of 5–6 adults to the east of the study area. Both proved to be adult males, each with an incubation patch, and their testes were identical in size (6 x 5 mm). It is our observation generally in social African barbets that the gonads are more or less equally enlarged in all members of a group, except that the (one) breeding female has larger ova or is otherwise (yolked ova, egg in oviduct, ruptured follicles) in a more advanced reproductive state than other females of the group.

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A new downy pteryla in passerine birds

by V. Y. Ilyashenko

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Recent treatments of the natal pterylosis of passerine birds in the Neotropics (Collins 1963, 1973, Collins & Kemp 1976, Ingels 1979), in Africa (Markus 1970, 1972) and in Asia (Ilyashenko 1981) have all followed Wetherbee (1957) in the terminology and in nearly all cases in the basic pattern of tracts he outlined. An additional tract in the cervical region has been reported by Collins & Bender (1977). I report here a new downy pteryla found in some Palaearctic passerine birds during field studies and when examining material in the collection of the Zoology Institute, USSR Academy of Science (Leningrad).

The new downy pteryla is situated at the base of the upper side of the wing between the innermost neossoptiles of the alar tract and the lateral margin of the humeral tract. These downs are attached to teleoptile feathers of the posthumeral tract (Lucas & Stettenheim 1972) (=pteryla caudohumeralis—Lucas 1979) and are here considered as posthumeral neossoptiles. These neossoptiles are usually represented by a partially oblique row of 3, rarely 2, reduced down about 1–2 mm long. They are not found in all individuals of a species nor even in all nestlings in the same nest. To date, posthumeral neossoptiles have been recorded in the following species: Raven *Corvus corax*

(6 of 6 individuals examined); Carrion Crow *Corvus corone* (8 of 20); Chough *Pyrrhocorax pyrrhocorax* (8 of 10); Ashy Minivet *Pericrocotus divaricatus* (4 of 6); Citrine Wagtail *Motacilla citreola* (6 of 39); Forest Wagtail *Dedronanthus indicus* (1 of 1); Godlewski Pipit *Anthus godlewskii* (4 of 20).

Although the current evidence indicates that the pattern and length of neossoptiles is fully developed at hatching (Wetherbee 1957: 356), in some individuals of the Carrion Crow and Chough posthumeral neossoptiles only appeared 2 or 3 days after hatching. In some nestlings of the Citrine Wagtail these delicate downs were lost in the hatching process and their apparent absence in other individuals may similarly be due to early loss. Further attention should be given to the neossoptiles of the alar region and the possible occurrence of posthumeral neossoptiles in other passerine species.

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Streaked Weaver *Ploceus manyar* breeding in Egypt

by Peter L. Meininger and Uffe Gjol Sorensen

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From 4 to 12 May 1983 Dr. Gamil Abdel Mowla Atta (Egyptian Wildlife Service) and the authors visited the lakes in the Egyptian Nile Delta (see Meininger & Mullié (1981) for a description) to study the local breeding birds. On the evening of 9 May 1983, from a dyke beside lake Burullus, 3 km south of Baltim (31°31′N, 31°07′E), we saw, heard and photographed from close range (down to 4 m) some unfamiliar sparrow-like birds. Based on field-notes recorded at that time we were later able to identify the birds as

Streaked Weavers *Ploceus manyar*, a species formerly only known from the Indian subcontinent and southeast Asia.

Description. Size and general appearance like House Sparrow *Passer domesticus* but with a shorter tail and shorter, rounded wings (the tertials almost reaching tip of wing).

Plumage of males: bright yellow crown and forehead. Black facial mask (around eye, cheek, ear-coverts and throat). Nape and back fulvous with prominent black streaks. Buff stripe on edge of mantle. Rump brown with fine black streaks. Tail black-grey. Median wing-coverts with dark centres and clear pale tips forming distinct wingbar. Greater wing-coverts with dark centres and narrow, pale fringes. Tertials with distinct pale fringes, most distinct on the upper one. Secondaries and primaries dark brown. Distinct fine streaks and a buff wash on chest, upper-breast and flanks. Belly and under tail-coverts immaculate. Bill blackish. Eye dark. Legs flesh-coloured.

One male was still moulting into breeding plumage. It showed dark spots in the yellow forehead and crown. The throat was light and bordered with fine streaks on the chest. Darkish around eye, on cheek and ear-coverts. General appearance more fulvous than blackish. Bill light pinkish.

Plumage of female: the head-pattern was characterised by a broad yellow supercilium and a bright yellow patch behind the ear-coverts, more or less connected. Forehead, crown, nape and ear-coverts brownish. Faint malar stripe and dark spot at base of bill. Upperparts and wings like those of male but more fulvous with dark brown streaks instead of black. Underparts immaculate with a yellow tinge. A few streaks on the flanks. Tail dark brown. Bill yellow. Eye dark. Legs flesh-coloured.

The birds' activities were centred around a stand of reeds, *Phragmites australis*. From our position it was possible to detect at least 4 complete weaver-like nests hanging in the reeds and another 3 under construction, all within a few metres of one another. The males were observed tearing long pieces of *Phragmites* leaves and using them for nest construction material. Females were mainly seen flying to and from the colony. Generally when a female returned to the colony area the males began displaying—climbing up and down the reeds, continuously flicking their tail and wings while singing. (The song is difficult to describe, but the sound from the colony somewhat recalled the twittering of a House Sparrow flock.) A flight-call was frequently heard—a rather short and harsh note reminiscent of the Wheatear *Oenanthe oenanthe*.

The following day (10 May) we explored this portion of the lake in a small canoe. Running parallel to the shore was a band of reedbeds c. 1 km wide, intersected by 'paths' used by small fishing boats to enter the area, with a luxuriant growth of the hydrophyte *Potamogeton pectinatus* in the shallow water (c. 0.3 m). In a stand of reed, c. 500 m from where we observed the birds the previous day (colony 1), we found a second colony of 2 complete nests and one still under construction (colony 2). Colony 1 was revisited and we could determine that it consisted of 8 finished nests and 4 nests under construction (one just started). Since the vegetation was thick and the water shallow, we could only examine nests placed on the periphery of the reed-beds. All nests were attached to the top of one or two *Phragmites* stalks, slightly less than 3 m above the water surface. Each nest consisted of a main chamber connected to a more or less developed entrance funnel. Every nest (even those under construction) was supplied with a mud-blob at the back. In colony 1 the entrances faced west, and in colony 2 southwest. In both colonies the nests were composed exclusively of *Phragmites* leaves.

Two nests in colony 1 each contained 3 eggs (19.9 x 13.8, 20.7 x 14.1, 21.0 x 14.1 and 18.2 x 13.6, 18.7 x 14.8, 19.5 x 14.2), and 2 nests in colony 2 contained one (20.9 x 14.1) and 2 eggs (18.8 x 14.4, 22.1 x 14.4). The average size of the 9 eggs was 20.0 x 14.2 mm, slightly smaller than that given by Baker (1926) for *P. m. flaviceps*, 20.3 x 14.3 mm (n=50), and *P. m. peguensis*, 20.6 x 14.9 mm (n=100). Egg colour was pinkish white.

In 3 other localities, within 1000 m of the above 2 colonies, we saw a few Streaked Weavers flying to and from other presumed colonies. The total number of individuals seen near Baltim was at least 25.

On 11 May 1983, 15 km southeast of Baltim, we saw a flock of at least 16 Streaked Weavers and found one nest under construction in an isolated reed-bed standing in the water of a ditch bordering an extensive saltmarsh. That same day one Streaked Weaver was seen during a short stop near an extensive reed-bed along the southern shore of Lake Burullus, 15 km north of El Haddâdi, which is some 35 km from the colonies near Baltim.

No birds, nests or eggs were collected at any of the localities at which we found this species.

Discussion. It appears that the Streaked Weaver is well established and not uncommon in the area near Lake Burullus where there are reed-beds. However, we did not see the species in other lakes in the Nile Delta, where similar *Phragmites* habitats occur.

Neither Meinertzhagen (1930) nor more recent literature on Egyptian birds mention the species as occurring in Egypt and it is not clear how it came to be introduced into Egypt. Long (1981) does not mention it as an introduced species anywhere in the world. Only 2 species of *Ploceus* from southeastern Asia have been introduced to areas outside their native ranges. The Golden Weaver *P. hypoxanthus* was unsuccessfully introduced to the Cocos-Keeling Islands (Indian Ocean); and the Baya Weaver *P. philippinus*, introduced to the Hawaiian Islands and Hong Kong, apparently has not established itself there (Long 1981). The Streaked Weaver appears to be generally sedentary (McClure 1974), and its occurrence in Egypt is most likely to be the result of human agency.

Four subspecies of *P. manyar* are recognized (Moreau & Greenway 1962). At least the nominate *P. m. manyar* from Java can be excluded, since it has a rich chestnut wash on breast and flanks (Hall 1957) and, moreover, nests in trees (Crook 1963). Among the remaining 3 subspecies our descriptions seem to fit best with the blackish *P. m. peguensis* from Assam, Burma and Bengal (Baker 1926, Hall 1957), but further confirmation is needed.

The habitat, nest structure and behaviour described here for this species in Egypt are in concordance with its habits in native areas (Ali & Ripley 1974, Ambedhar 1972, Crook 1963).

The breeding bird community of the northern Egyptian reed-beds has a low species diversity. The breeding passerines include the very abundant Clamorous Reed Warbler *Acrocephalus stentoreus*, the Graceful Warbler *Prinia gracilis*, Fan-tailed Warbler *Cisticola juncidis* and scattered populations of the Yellow Wagtail *Motacilia flava pygmaea*. There is no primary granivore breeding in the area and thus the Streaked Weaver may be able to fill a vacant niche. On this basis one could predict that it will firmly establish itself in the area.

Acknowledgements. These observations are some of the results of the Dutch-Danish Ornithological Expedition to Egypt in March-May 1983. The expedition was partly financed by grants from the International Waterfowl Research Bureau, the Netherlands Foundation for International Nature Conservation and the Netherlands Foundation for International Bird Protection. The Delta trip was carried out in collaboration with the Egyptian Wildlife Service (director Dr. Saad el Badrawi). The E.W.S. generously placed a 4-wheel-drive vehicle with driver at our disposal. Our most friendly thanks go to Dr. Gamil Abdel Mowla Atta. Without his pleasant and enthusiastic participation it would not have been possible to do the work. We are grateful to Steven M. Goodman (Ann Arbor, Michigan, USA) for his valuable comments on the manuscript.

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Behavioural indication of an African origin for the Malaysian Honeyguide *Indicator archipelagicus*

by Marina Wong

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On the basis of bill and body size and of plumage colouration, the Malaysian Honeyguide *Indictor archipelagicus* is considered to be more closely related to the Greater Honeyguide *I. indicator* and the Scaly-throated Honeyguide *I. variegatus* of Africa than it is to the only other Asian species, the Himalayan

Orange-rumped Honeyguide *I. xanthanotus* (Friedmann 1954, 1955). Here, I discuss a behaviour trait of the Malaysian Honeyguide which supports the notion that it is descended from an African form.

I consistently heard the *miaw-krrruuu* call (Harrisson 1950, Smythies 1968, M. Wong) of the Malaysian Honeyguide issuing from the forest overstorey between trail markers A16 and A17 (50 m apart) in Pasoh Forest Reserve (Negeri Sembilan, West Malaysia) during the period May 1978–1980. Since the discovery of this site by J. C. Pearson in April 1976 (D. R. Wells), a honeyguide has called there during all irregular checks made by various observers. (D. R. Wells recently informed me that the call-site has been abandoned since February 1982.) It is not known whether the same bird was heard in each instance since no attempt was made to mark the bird at the call-site. However, observations made elsewhere indicate that different males may successively use one particular call-site (K. Scriven *in* Medway & Wells 1976).

The honeyguide was not heard to call until an observer approached quite close to the call-site. This was not because the call attenuated with distance since a second person, standing 150–200 m away (at either trail marker A13 or A20), could clearly hear the call made at the call-site. As it called, the honeyguide moved in an agitated fashion from branch to branch within a circumscribed area in the foliage c. 15–20 m above the ground; but it did not fly away from the observer. As the observer left the visual field of the bird, the calling stopped, but the same calling behaviour resumed if the observer again approached. On occasion, when the honeyguide did not immediately see the returning observer, a single imitation of *miaw* was sufficient to cause the honeyguide to approach overhead and start calling.

Whereas other Malaysian rain forest birds would either fly away, stop calling or plunge deeper into the foliage on observing a human, the Malaysian Honeyguide draws attention to its presence by calling continuously. This behaviour appears to resemble that employed by the Greater Honeyguide in Africa to attract the attention of large mammals before "guiding" them to the enclosed nests of the African honeybee *Apis mellifera* in order to feed on the wax combs exposed by the mammals' foraging activities (Friedmann 1955, Macpherson 1975).

Like the African honeyguides mentioned above, the Asian honeyguides also feed on beeswax and bees (see e.g. Friedmann 1974). However, the assistance of a large mammalian foraging symbiont in obtaining beeswax may be less critical for the Asian honeyguides than for the African honeyguides, since unlike the African honeybee which builds nests protected within cavities of hollow trees, the two common Malaysian honeybee species, the giant honeybee *A. dorsata* and the dwarf honeybee *A. florea*, build nests of single combs which are suspended vertically from the branches of emergent or fallen trees (Morse & Laigo 1969). These exposed nests are covered by a protective curtain of bees which readily attack animals that come too close to the nest. In spite of the fierceness of the giant honeybees, the beeswax is evidently quite accessible, since the territorial behaviour and mating system of the Orange-rumped Honeyguide are organized around the male's defense of the giant honeybee's nest and fallen wax combs (Cronin & Sherman 1976).

The observed natural history of Malaysian mammals suggests that they are improbable foraging symbionts of the Malaysian Honeyguide. The Malayan Sun Bear *Helarctos malayanus* feeds on bee larvae and honey and is an able climber (Medway 1969), but it is primarily nocturnal and would be unlikely to interact with the diurnal honeyguide. The arboreal civets such as the Binturung *Arctictis binturung* or the Three-striped Palm Civet *Arctogalidia trivirgata,* which by virtue of their climbing ability and foraging habits (Medway 1969) are likely to prey upon bees' nests, are also primarily nocturnal. Furthermore, there are no local legends of honeyguides leading humans to bees' nests as there are in Africa, and like the other Malaysian mammals, humans in the area harvest honey at night when the giant honeybees tend to be less aggressive (Morse & Laigo 1969). Hence, the responsiveness of the Malaysian Honeyguide to humans (and possibly to other large mammals) cannot be explained by the established occurrence of a foraging association with other animals.

Guiding behaviour in the honeyguides has only been reported for the phylogenetic branch which includes the Scaly-throated Honeyguide and the Greater Honeyguide and is better developed in the latter (Friedmann 1954, 1955, MacPherson 1975). Because of the similarities in bill morphology and plumage characteristics, Friedmann (1954, 1955) considered the Malaysian Honeyguide to be derived from an ancestral form similar to the Scaly-throated Honeyguide and further noted that the purring quality in the ending of the *miaw-krrruuu* call of the Malaysian Honeyguide resembles the *ghrrr* note of the Scaly-throated Honeyguide. (Refer to Payne, in press, for sonograms of these 2 species; unfortunately, there is no recording of the Himalayan Orange-rumped Honeyguide available for comparison.) The Malaysian Honeyguide's response of calling upon seeing a human may be attributable to the phylogenetic persistence of its African ancestor's attention-soliciting behaviour.

In the past several decades the incidence of guiding behaviour in the Greater Honeyguide has declined in areas of Africa where humans harvest wild honey less frequently than in the past and a high proportion of the birds observed to guide are juveniles (Friedmann 1955, R. B. Payne). These 2 observations suggest that while the responsiveness of the honeyguide to humans (or other large mammals) is innate, this behaviour will only persist and develop into a foraging symbiosis in the adult honeyguide if the initial efforts are consistently rewarding. More field observations are clearly required to investigate systematically the biological context of this responsive behaviour in the Malaysian Honeyguide. One immediately pertinent question would be whether juveniles are more likely to exhibit this attention-soliciting behaviour than adults.

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Polyrectricyly

by S. Somadikarta

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The number of tail feathers is constant for most species of birds, specifically for any taxon, or even for a sex within a species (*cf.* Stresemann & Stresemann 1966: 25).

Polyrectricyly is a term used here for the occurrence of more than a normal number of tail feathers in a bird. The tail of a bird can be unilaterally or bilaterally polyrectricylic. In unilateral polyrectricyly the shape of the tail is, of course, asymmetric. So far, no more than one extra feather has been shown either on the left side (left polyrectricylic), or on the right side (right polyrectricylic), while bilataral polyrectricyly is confined to only one extra feather on each side. Further investigations will be needed to show whether polyrectricyly is caused by chromosomal anomaly.

Heinroth (1898, 1907), Wetmore (1914), Friedmann (1930), Mayr & Mayr (1954), Steinbacher (1955), Sutter (1956), Verheyen (1956), Collins (1961) and Stresemann (1963), who all studied the tail moult of certain species of birds, did not mention finding any abnormalities in the number of the rectrices.

Stresemann & Stresemann (1966) in their monograph on the moult of birds, mentioned only 6 specimens with additional tail feathers out of more than 5000 bird skins examined. During bird ringing activities, De Roo (1967) caught an *Apus a. apus* with 12 rectrices in Overijse, 15 km SE of Brussels, on 1 July 1966. Scott (1969) trapped for ringing a *Corvus frugilegus* with 14 tail feathers at Lydd, Kent on 14 June 1968.

Among the owl, frogmouth, and wood-swallow collections of the Museum Zoologicum Bogoriense I have found 6 polyrectricylic specimens. These and all other specimens with additional tail feathers so far recorded are listed in Table 1.

TABLE 1.

List of polyrectricylic bird specimens known

Specimen	Sex	bp	rp	lp	Reference
Tetraogallus tibetanus BM(NH) 89.5.10.1182 Tibet, Nov 1876	—	—	21	—	Stresemann & Stresemann (1966: 93)
Chrysoema victor AMNH 249176 Ngamia, 25 Nov 1924	♂	—	13	—	*ibid* (1966: 131)
Pterocles alchata ZIPAS Warsaw Serachs, 8 Sep 1890	♀	18	—	—	*ibid* (1966: 138)
Pterocles alchata ZIPAS Warsaw Merw, 2 Nov 1891	♀	—	17	—	*ibid* (1966: 138)
Macronectes giganteus BM(NH) 1914.3.8.19 S. Georgia, 7 Dec 1913	—	16	—	—	*ibid* (1966: 299)
Bubo lacteus AMNH 631692 Brit. E. Africa, 1 Mar 1917	—	14	—	—	*ibid* (1966: 369)
Bubo k. ketupu MZB 17670 Bogor, 12 Nov 1937	♂	—	—	13	
Bubo sumatranus strepitans MZB 5412 Bogor, 10 Feb 1923	♂	14	—	—	
Ninox punctulata MZB 17710 Boni, 15 Jul 1912	♂	14	—	—	
Otus m. manadensis MZB 17716 Lompobatang, 28 Aug 1931	♀	14	—	—	
Podargus papuensis MZB 12343 Zuid New Guinea (*now* S. Irian Jaya), 1911	—	12	—	—	
Apus a. apus Ringed Overijse (15 km SE of Brussels), 1 Jul 1966	—	12	—	—	De Roo (1967: 141)
Artamus leucorhynchus leucopygialis MZB 3164 West Ceram, 6 May 1938	♀	—	—	13	
Corvus frugilegus Ringed, Lydd (Kent), 14 June 1968	—	14	—	—	Scott (1969: 109)

Notes. AMNH=The American Museum for Natural History; BM(NH)=The British Museum (Natural History); MZB=Museum Zoologicum Bogoriense, Bogor, Indonesia; ZIPAS=Zoological Institute, Polish Academy of Science, Warsaw;bp, rp, lp=bilateraly, right, left polyrectricylic.

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Mensural and moult data for some birds of Martinique, French West Indies

by Ralph W. Schreiber & Elizabeth Anne Schreiber

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In late May 1982 we mist netted, measured external characteristics, and collected a small series of birds in 4 diverse habitats on Martinique, French West Indies. Measurements are seldom available for birds in general (Clark 1981), and are rare for Martinique. Wing loading has not been calculated previously for any species in the West Indies. We present our data here, along with notes on moult and other observations.

METHODS

We mist netted: (1) along a newly cut dirt road in a mahogany (*Swietenia* sp.) plantation near the Arboretum just north and into the mountains from Fort-de-France in a mesohygrophile area of *Simaruba amara, Inga* sp., *Sloanea* sp., and *Daeryodes excelsa*; (2) in the Forêt Dominale des Trois-Ilets along Highway D-7 in a xeric region of *Rhizophora, Conocarpus, Croton, Eugenia,* and *Andropogon* beside a lagoon directly connecting to the Caribbean Sea; (3) in an urban area at the Office National des Forêts, Route de Moutte, Fort-de-France; and (4) at the ruins of Creve Coeur, near Saint Anne, in xeric shrubs on a hillside.

Linear measurements were taken with a Vernier caliper and metre stick, and we used various Pesola spring balances. We measured the exposed culmen, exposed tarsus, tail, the weight, and the wing span of fully extended, but not tightly stretched, wings and across the longest distance of the wings. We traced body and wing outlines on large paper with the wings fully extended and the dead bird ventral side down. We did not trace the neck and head outlines but did the tail approximately half spread (40°–50°). We used a compensating polar planimeter (Keuffel and Esser Co.) to trace the wing, body and tail outlines, giving areas in cm^2. In another study (Schreiber & Schreiber, in prep.), on the birds of Corrientes, Argentina, we determined with repeat tracings of single birds that our results on each tracing of a wing and tail area were within ±4% of each other. All measurements and tracings were made within 2 hours of mist netting the birds. Wing loading is calculated by dividing weight by wing area (which includes the area of the body between the 2 wings). We used the Diversity Index $\left[H=\frac{n\log n-\sum_{i=1}^{k} f_i\log f_i}{n}\right]$ where f_1=individuals of species i; k=total number of all individuals of all species; and n=number of species (Zar 1974). We used BMDP software to perform calculations. We preserved birds as spirit specimens (injected with 10% formalin and stored in 70% alcohol), study skins, or a combination of skeleton and flat skin. We did not determine sex on spirit specimens but sexed all others.

TABLE 1

Birds captured in various habitats on Martinique, French West Indies, May 1982.

	Numbers (includes individuals released)					
Species	Wet Mahog-any forest 18–19 May	Coastal, Fôret des Trois-Ilets. 20 May	Urban yard. Route de Moutte. 21 May	Dry Forest, Creve Coeur. 23 May	Total Captured n	%
1 *Eulampis jugularis* Purple-throated Carib	26	1	0	0	27	17
2 *Sericotes holosericeus* Green-throated Carib	2	0	1	0	3	2
3 *Orthorhyncus cristatus* Antillean Crested Hummingbird	0	0	0	1	1	1
4 *Elaenia martinica* Caribbean Elaenia	3	2	3	2	10	6
5 *Margarops fuscus* Scaly-breasted Thrasher	1	0	0	0	1	1
6 *Turdus nudigenis* Bare-eyed Thrush	1	0	0	0	1	1
7 *Myadestes genibarbis* Rufous-throated Solitaire	1	0	0	0	1	1
8 *Vireo olivaceus* Red-eyed Vireo	0	1	0	0	1	1
9 *Vireo altiloquus* Black-whiskered Vireo	0	2	0	2	4	3
10 *Dendroica petechia* Yellow Warbler	0	0	0	1	1	1
11 *Coereba flaveola* Bananaquit	14	5	13	3	35	22
12 *Quiscalus lugubris* Carib Grackle	1	10	4	0	15	9
13 *Icterus bonana* Martinique Oriole	1	0	0	0	1	1
14 *Loxigilla noctis* Lesser Antillean Bullfinch	17	5	10	1	32	20
15 *Tiaris bicolor* Black-faced Grassquit	1	8	1	9	18	11
16 *Saltator albicollis* Streaked Saltator	2	1	1	3	7	4
Number of individuals	70	35	33	22	158	100
Number of net hours	108	45	45	27	225	
Number of species	12	9	7	8	16	
Species per net hour	0.111	0.200	0.155	0.296	0.07	
Birds per net hour	0.65	0.75	0.71	0.82	0.70	
Diversity Index	1.736	1.883	1.520	1.767		

RESULTS AND DISCUSSION

In Table 1 the 16 species we captured are listed by habitat type, with species caught per net hour, total birds per net hour, and a Diversity Index. Numbers beside the scientific name are used in Fig. 1 to represent the species. The dry, hilly scrub forest at Creve Coeur appears to have somewhat higher diversity and a greater abundance of birds than the other 3 habitats. The wet mahogany plantation had the lowest diversity and abundance, as we expected, since it is primarily a mono-culture, although the undergrowth is lush. Our sample size from only one season, however, is too small to make any generalizations. We did not observe any species that we did not capture in our mist nets. There appear to be a few common species and many rare or uncommon

TABLE 2

Meristics of species captured on Martinique, French West Indies, May 1982. Data include the mean±1 standard deviation and the range.

Scientific Name	Nature of specimens		Culmen (mm)	Wing chord (mm)	External tarsus (mm)	Tail (mm)	Weight (gm)	Wing area (cm²)	Tail area (cm²)	Wing span (mm)	Wing Loading gm/cm²
Eulampis jugularis	AL=15		24.0±2.81	75.9±4.19	5.9±0.34	40.7±2.54	9.3±1.35	36.3±2.7	13.4±1.55	175.2±7.3	0.257±0.032
	SN=3		17.5–27.5	70.0–84.0	5.0–6.5	36.0–46.0	7.5–12.0	32.3–40.5	10.4–16.0	165–189	0.21–0.31
	KB=1										
Sericotes holosericeus	AL=3		27.7±3.18	63.5±2.12	5.2±0.35	34.5±0.71	5.6±0.07	25.6±0.14	11.5±2.76	151	0.221±0.002
			25.5–30.0	62.0–65.0	5.0–5.5	34.0–35.0	5.6–5.7	25.5–25.7	9.6–13.5		0.220–0.222
Orthorhyncus cristatus	AL=1		10.0	50.0	4.5	32.0	2.7	17.0	6.4	119	0.159
Elaenia martinica	AL=7	♀♀	12.5±1.41	80.0±5.09	20.0±1.83	68.5±7.19	21.3±1.26	109.6±9.55	16.0±3.51	223.5±8.18	0.196±0.02
	SN=5	4	11.5–13.5	73.0–85.0	18.0–22.0	62.0–78.0	19.5–22.3	97.8–117.4	13.0–21.1	213.0–230.0	0.183–0.228
	KB=2	♂♂	12.5±0	84.7±1.53	20.0±0	71.3±2.89	22.6±0.36	125.4±5.23	18.7±3.24	251.0±8.19	0.180±0.011
		3		83.0–86.0		68.0–73.0	22.3–23.0	119.4–128.7	15.0–20.8	242.0–258.0	0.173–0.193
Margarops fuscus	AL=1		19.5	117	29.0	90.0	64.0	215.3	41.0	309.0	0.297
Turdus nudigenis	AL=1		21.0	122	31.0	95.0	59.0	250.1	40.0	332.0	0.236
Myadestes genibarbis	AL=1		8.5	90	—	85.0	30.0	132.7	33.5	248.0	0.226
Vireo olivaceus	AL=1		13.0	73	20.0	46.0	14.5	78.0	11.0	220.0	0.186
Vireo altiloquus	AL=3		16.4±0.42	80.8±3.56	20.8±1.30	57.2±2.17	19.9±1.72	111.6±3.95	13.9±2.79	237.6±10.55	0.179±0.018
	SN=1		16.0–17.0	78.0–86.0	20.0–23.0	55.0–60.0	18.0–22.6	107.0–116.5	10.8–17.0	219.0–245.0	0.157–0.208
Icterus bonana	AL=1		19.0	85.0	26.0	80 worn	29.0	—	—	—	—
Dendroica petechia	AL=1		13.0	59.0	18.5	43.0	9.7	65.8	10.0	179.0	0.147
Coereba flaveola martinicana	AL=12	♀♀	14.9±3.06	57.2±2.17	17.3±0.67	39.0±3.00	10.1±1.47	64.2±5.27	6.08±1.08	170.5±4.44	0.165±0.012
	SN=15	5	13.0–19.5	54.0–60.5	16.5–18.0	36.0–44.0	8.4–12.0	57.3–70.1	5.1–7.4	166.0–176.0	0.147–0.174
		♂♂	15.3±1.93	61.5±2.76	18.3±0.68	41.1±3.12	10.8±0.41	72.0±3.85	6.9±1.62	178.9±6.97	0.151±0.013
		8	14.0–20.0	56.0–66.0	17.0–19.0	34.0–45.0	10.0–11.5	66.0–78.1	5.3–10.0	167.0–187.0	0.137–0.174
Quiscalus lugubris	AL=8	♀♀	23.6±0.69	107.2±2.66	31.4±2.2	85.7±3.38	54.8±3.45	225.7±7.40	28.4±4.92	318.7±6.95	0.246±0.012
	SN=2	8	22.5–24.5	104.0–110.0	28.0–35.0	80.0–91.0	49.0–58.0	216.8–236.2	23.0–38.3	311.0–331.0	0.225–0.263
	FB=4	♂♂	27.8±2.36	120.4±2.97	34.4±1.52	99.0±5.79	74.2±4.6	301.6±20.1	40.4±0.49	378.5±14.8	0.254±0
		5	25.5–31.5	116.0–124.0	33.0–36.0	93.0–105.0	70.0–80.0	287.4–315.8	40.0–40.7	368.0–389.0	0.253–0.254
Loxigilla noctis	AL=12	♀♀	12.3±0.69	68.7±1.06	19.5±1.18	48.0±1.16	18.4±1.09	92.0±2.17	10.4±1.31	206.0±6.17	0.200±0.013
	SN=11	8	11.5–13.5	67.0–71.0	17.0–21.0	46.0–50.0	16.2–20.0	88.0–94.7	7.5–11.8	198.0–213.0	0.181–0.224
	KB=3	♂♂	13.1±0.62	74.6±3.38	19.9±0.83	51.3±1.83	19.2±1.74	103.2±4.79	11.4±2.69	217.0±7.89	0.186±0.017
		10	12.0–14.0	69.0–80.0	18.0–21.0	50.0–55.0	15.5–21.2	96.6–111.7	8.0–17.0	206.0–233.0	0.152–0.212
Tiaris bicolor	AL=9	♀♀	9.7±0.77	52.0±2.0	16.7±0.58	39.0±1.73	10.5±0.87	57.5±2.91	6.7±1.75	155.7±4.51	0.183±0.011
	SN=5	3	9.0±10.5	50.0–54.0	16.0–17.0	37.0–40.0	9.5–11.0	55.0–60.7	5.0–8.5	151.0–160.0	0.173–0.194
		♂♂	9.9±0.52	53.1±1.58	16.1±0.95	40.7±2.56	10.0±1.45	58.4±3.51	7.6±1.29	161.4±3.98	0.173±0.033
		7	9.5–10.8	51.0–55.0	15.0–18.0	38.0–45.0	71–11.6	54.4–63.0	6.0–9.4	156.0–166.0	0.121–0.213
Saltator albicollis	AL=4		20.1±0.90	100.1±4.38	24.9±1.49	86.6±2.07	41.0±4.04	196.9±12.9	31.6±1.73	297.1±9.76	0.208±0.017
	SN=2		19.1–22.0	94–105	23.0–27.0	84.0–89.0	37.0–49.0	174.0–215.1	29.8–34.3	282–309	0.185–0.230

Specimen codes: AL=alcoholic entire specimen; FB=flat skin and skeleton; KB=study skin and body skeleton; SN=skeleton complete.

species present on Martinique (Table 1). Most of the central, south and west portions of the island where we worked are very disturbed; if not covered with buildings or crops, much grazing of domestic animals occurs.

Mensural data of the 16 species are summarized in Table 2, including mean, standard deviation, and range. Males and females of some species are segregated if significant numbers of individuals were involved. Wing loading in these species increases with increasing body weight (Table 2 and Fig. 1). All species fall into the category which Greenwalt (1962) refers to as "all other birds" (mainly passerines).

Few measurement data exist, or have been published, for Caribbean birds and therefore few comparisons are presently possible. The existing data on weights agree closely with our sample (Olson & Angle 1977, Steadman *et al.* 1980, Olson *et al.* 1981, Thomas 1982, Prŷs-Jones 1982). Wing length data for Dominica, the nearest island to the north of Martinique, also are similar to our measurements (Prŷs-Jones 1982). Clearly further data for all West Indian islands are needed, preferably samples collected throughout one or more years.

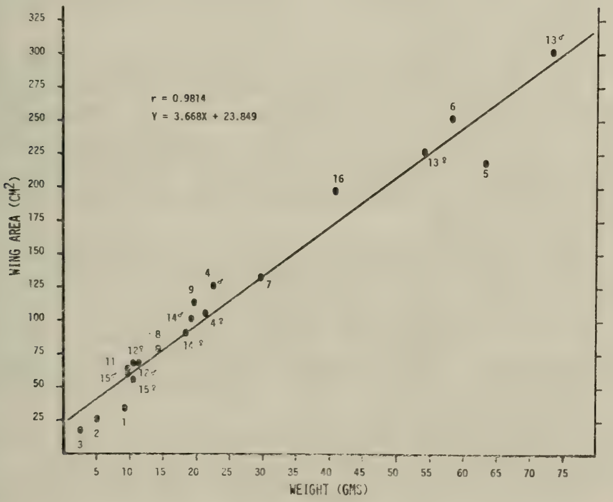

Fig. 1. Relation between weight and wing area for 16 species of birds on Martinique, French West Indies. Numbers refer to species as listed on left margin of Table 1.

SPECIES ACCOUNTS

Eulampis jugularis Purple-throated Carib. This hummingbird was very abundant in the mahogany forest and a few were present at Forêt des Trois-Ilets, but it was absent from lowland and dry regions (Table 1). Most birds had a heavy infestation of mites in the nostrils and the feathers at the base of the bill. Only 3 were not moulting and these 3 weighed 8-9 g; all others were either in heavy body moult (weighing 8-12 g) or had heavy body and primary moult (10.5-10.7 g). Of these last (n=8), 6 had primaries 1-3 or 1-5 (from carpal joint outwards) sheathed and growing, causing obvious gaps in the usual wing contour. Prŷs-Jones (1982) did not mention this condition for birds from Dominica in July/August and we wonder if this situation exists in other populations. Ovaries of 2 females were fine granular and measured 4 x 3 mm and 6 x 3 mm; 2 males had left testes 1.5 x 1 mm and 5 x 3 mm. Only a small amount of sexual dimorphism is evident from our sample, with males somewhat larger than females.

Sericotes holosericeus Green-throated Carib. These humming birds were netted in the hilly, dry forest at Creve Coeur and in the urban yard. None was moulting.

Orthorhyncus cristatus Antillean Crested Hummingbird. Only one, captured at Creve Coeur. No moult.

Elaenia martinica Carribean Elaenia. Captured in all habitats in equal numbers. No birds were moulting but the tails were worn. Ovaries of 4 females were 10 x 4, 9 x 7, 9 x 5 and 8 x 5 mm and 2 had enlarged ova 2-3 mm in diameter. In 3 males the left testes were 12 x 6, 10 x 7 and 8 x 5 mm, probably indicating onset of breeding.

Margarops fuscus Scaly-breasted Thrasher. One was captured in mahogany forest; it had very worn plumage, especially in the tail and wing coverts, but was not moulting.

Turdus nudigenis Bare-eyed Thrush. One was captured in the mahogany forest. It showed no moult.

Myadestes genibarbis Rufous-throated Solitaire. Only one was captured, in mahogany forest. It had heavy lesions caused by *Knemidokoptes* mite infestation, the so-called "tassle-foot" (see Keymer 1982: 583-586 and Figs. 25-37).

Vireo olivaceus Red-eyed Vireo. Probably a very late migrant (Bond 1979), this bird was captured (20 May) along the coast at Trois-Ilets. The wing formula of this female (ovary fine granular 3 x 1 mm) fits the North American breeding race *V. o. olivaceus.*

Vireo altiloquus Black-whiskered Vireo. Two were netted along the coast and 2 in the xeric hills. Rectrices were worn but no moult was present. One female had an enlarged oviduct, ovary 8 x 6 mm and 6 ova 2 mm in diameter.

Dendroica petechia ruficapilla Yellow Warbler. The only one captured was in the xeric hills and had a reddish head and throat. This habitat seems unusual since in most Caribbean locations Yellow Warblers are confined primarily to mangroves (A. Cruz, June 1983).

Coereba flaveola Bananaquit. The most common species caught, Bananaquits were most numerous in mahogany forest and urban areas. Of the 15 skeletons preserved, 10 were males and 5 females. Of the males one juvenile had a testis 1 x 0.5 mm, those of the rest measuring 7.3-1.3 x 5.1-1.5 mm. Only one male was moulting and the rest had primaries and especially rectrices, very worn. On one the outer right rectrix was one-half grown. Ovaries measured 5 x 4 to 8 x 4 mm and most ova were 1-3 mm. One female had all ova 0.5 mm, the other 4 had enlarged oviducts, and one contained a 10 mm ovum in the duct and 2-3 shed follicles. None was moulting and the plumage was not especially worn, as it was in the males. Of our 12 spirit specimens, 5 were juveniles, with yellow superciliary stripes. None was moulting and our moult data agree closely with those of Prŷs-Jones for Dominica in 1978. Our wing length data indicate that males are significantly larger than females ($t=2.27$, $p>0.05$) as Diamond (1973) found on Jamaica. Males were also larger in tarsus length ($t=2.61$, $p>0.05$), wing area ($t=2.88$, $p>0.05$), and wing span ($t=2.66$, $p>0.05$).

Quiscalus lugubris Carib Grackle. These were netted most commonly along the coast in noisy mixed flocks of both sexes. In 4 females the ovaries ranged 8-15 x 3-6 mm. One female had a 15 mm yolk in the enlarged oviduct and 1 unshed 12 mm ovum. In another the ovary measured 8 x 3 mm, with several recently shed follicles, while the enlarged oviduct seemed to be regressing. The one male's left testis measured was 9 x 7 mm. These data indicate an extended breeding season in spring 1982 and only further data will determine if this is usual, although we suspect that it is. Males are significantly larger than females: culmen length ($t=3.88$, $p>0.02$), wing length ($t=7.72$, $p>0.001$), tarsus length ($t=2.90$, $p>0.05$), tail length ($t=5.15$, $p>0.01$), weight ($t=8.12$, $p>0.001$), wing area ($t=9.07$, $p>0.001$), and wing span ($t=8.49$, $p>0.001$). Wing loading is not significantly different.

Icterus bonana Martinique Oriole. Only one was captured, in the mahogany forest. It was not moulting.

Loxigilla noctis noctis Lesser Antillean Bullfinch. Bullfinches, the second most common bird encountered, were found in all habitats, most commonly in the mahogany forest and urban yard. Ovaries ranged 9-6 x 7-3 mm. Two females had enlarged oviducts and ova of 2 mm, but our sample seems to indicate that no breeding was occurring in late May. Testes ranged 9-3 x 2.6 mm. No moult was noted and feathers did not seem worn. Males were significantly larger than females in most measurements: culmen length ($t=2.56$, $p>0.05$), wing length ($t=5.21$, $p>0.001$), tail ($t=4.65$, $p>0.01$), and wing area ($t=6.59$, $p>0.001$). Tarsus length, weight and wing loading were not significantly different.

Tiaris bicolor Black-faced Grassquit. Grassquits were uncommon in the mahogany forest and urban yard, but common in coastal scrub and dry, hilly scrub. In a small sample, ovaries were 6 x 9 mm and testes 8 x 5 mm. One female had an enlarged oviduct and one ovum 4 mm and 4 ova 2.5 mm; all were distinctly yellow in colour. Primaries 1 and 2 of one immature were 3/4ths grown in both wings; the remaining primaries, secondaries, and rectrices were old. No moult was present in other birds.

Saltator albicollis Streaked Saltator. Found in small numbers in all habitats. The one male sexed had a right testis 11 x 11 mm and the left 6 x 4 mm. All birds had very worn primaries, secondaries, and rectrices, but only one showed any moult; the second from outer right rectrix was 7/8th grown. The bills on all but one were tan coloured, and one had an orange tip with a very shiny black base.

All the specimens collected are housed at the LACMNH and are available to interested individuals for further study.

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An additional specimen of the Swallow-tailed Cotinga *Phibalura flavirostris boliviana*

by Niels Krabbe

Received 16 August 1983

During a recent examination of the collection of birds in the Zoological Museum, University of Copenhagen, I discovered a mounted specimen of the Swallow-tailed Cotinga *Phibalura flavirostris boliviana*, a subspecies previously known only from 2 specimens, a male and a female, both collected at Atten, Aplobamba, Yungas of La Paz, Bolivia, by R. S. Williams on 6 and 20 August 1902, and preserved in the American Museum of Natural History (AMNH) (Chapman 1930, Snow 1983).

The newly discovered specimen and some other Bolivian birds were mailed in a cardboard box labelled "Yungas von La Paz" to the museum as a present from the Danish Consul General in Lima, H. Witt. The specimens were received on 6 January 1847, and the cotinga was mounted 12 June 1848. The curator of the museum at the time, J. Reinhardt, labelled the bird *Phibalura boliviensis*, and wrote a note in the accession journal of the museum, saying that the bird was new to the region, that it had a pure yellow throat in spite of extensive green edging on wing and tail and that it furthermore had the 1st (outer) primary decidedly shorter than the 4th (in *P.f. flavirostris* the 1st is equal to the 4th or longer). He therefore considered it a problematic species. However, he apparently never published the record, and the manuscript name applied by him is now invalid according to the International Code of Zoological Nomenclature.

The bird is in fresh plumage and is, judging from comparison with the nominate subspecies and data on the 2 *boliviana* specimens in the AMNH (John S. Weske), an immature male. While the female *boliviana* lacks black feathers on the head, the new specimen has fuscous-black shaft streaks on the crown feathers bordering the red crown patch, and the ocular area and auriculars black. The white postauricular area is barred and, unlike the specimens in the AMNH, no more extensive than in *P.f. flavirostris*. The black subterminal bars above are c. 2 mm wide (female-like), but the basal parts of the features are rather dark olive-brown, as in an immature *flavirostris* male and different from the bright olive green of females. The black of the wing and tail tip is glossy, the wing and tail both extensively edged olive green, the large subterminal patch on an inner tertial well developed. There is no white tip to any secondary or rectrix. The throat is yellow anteriorly and unmarked, cream-coloured posteriorly. The breast, upper belly, and flanks are barred; the centre of the belly and undertail coverts are pale yellow with strongly yellow tips, one feather on the vent showing a tiny dot of brown. The tip of the longest tail feather is slightly narrower than in *P.f. flavirostris,* and is defintely twisted.

Measurements (mm) are:—flattened wing 101, tail 114, tarsus 18, culmen from feathers 12.5, bill from anterior edge of nostril 8, width at same place 6.0, depth 5.2. Wing formula (1st=outermost): 2. 3, 4, 1, 5, 6, 7, 8, 9; distance from the tip of each primary to the longest: 0.7, 4, 8.5, 11, 17, 22, 24, 28; tip of longest (innermost) secondary to tip of longest primary: 25; distance from tips of rectrices 1–5 to tip of longest (6th): 60, 56, 50, 41, 27.

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First record of the Pied Stonechat *Saxicola caprata* for Arabia

by P. R. Colston & M. D. Gallagher

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On 10 April 1983, at Khasab (26°11′N, 56°15′E.), capital of the Musandam region of the Sultanate of Oman, MDG saw a small black-and-white bird which he was not able to identify with certainty, and which was subsequently collected. At the British Museum (Natural History) (BMNH) at Tring, where the specimen is now lodged (BM,1983.6.2), PRC identified it as an adult ♂ Pied Stonechat *Saxicola caprata bicolor,* the first record of this species for Oman and apparently for Arabia.

On collection, the specimen weighed 14.3g, the bill was black, the mouth, legs and toes blackish, and the iris black. The testes measured 5mm and 6mm.

The bird is in worn plumage, with extensive wear to the wing and tail feathers. The size of the gonads and the worn plumage strongly suggest recent breeding activity. Although the subspecies *bicolor* and *rossorum* intergrade along their contiguous boundaries (see later), the Oman specimen agrees with typical *bicolor* in plumage (the white of the belly and under tail-coverts, though greater in extent than more eastern subspecies, is less extensive than in *rossorum*), and also in the measurements (see Table 1).

TABLE 1

Comparative measurements of ♂♂ *Saxicola caprata*

S.c. bicolor	*Wing*	*Bill*	*Tarsus*	*Tail*
Oman specimen (BM. 1983.6.2)	70	15 (from skull)	20	50
BMNH: 10 ♂♂ from Punjab	69–74 (70.7)	—	—	—
Vaurie (1959: 340): 20 ♂♂ N. India & Deccan	68–74 (71.5)	—	—	—
Ali & Ripley (1973)	66–67	13–15 (from skull)	20–24	50–55
S.c. rossorum				
BMNH: 10 ♂♂ from Afghanistan	75–77 (76)	—	—	—
Vaurie (1959: 340): 8 ♂♂	76–79 (77.5)	—	—	—
Dement'ev & Gladkov (1954)	70–76 (73.84)	10.5–11 (from feathers)	—	51–57

The stonechat had been watched for nearly an hour during early morning within a belt of irrigated cultivation with trees between mountains. It perched frequently on a wire fence above some mud in the remains of a rainwater pool and dropped down to feed from the mud surface together with resident House Sparrows *Passer domesticus*. Occasionally it perched in trees nearby, usually on exposed branches 3–4 m above ground. When it flew on too close approach, the white on the wings and tail were conspicuous.

According to Ali & Ripley (1973), *S.c. bicolor* breeds as a fairly common partial migrant in Pakistan and northern India, from Baluchistan northwards to Kashmir, and eastwards to northern Bengal, wintering southwards as far as northern Karnataka. In the more northern parts and at higher levels it is mostly a summer breeding visitor Mar–Aug, arriving in February or March and leaving in September or October. It is double-brooded.

The most westerly subspecies is *S.c. rossorum*, with a breeding range which includes eastern Iran, northwards to the Syr Dar'ya river in Kazakhstan, southeastwards to the Pamirs, and southwestwards through parts of Afghanistan to the Mekran (Dement'ev & Gladkov 1954, Paludan 1959, Peters 1964, Vaurie 1959). That it intergrades with *bicolor* in northern Baluchistan and in northern Kashmir (Peters 1964) and as far east as the Punjab (Vaurie 1959) is well shown in the skin collection at BMNH. It arrives in Persian Baluchistan in early March (D. A. Scott—October 1983); but in the USSR it arrives in TransCaucasia and southern Russian Turkestan between April and May, young fledge between May and July, and the adults moult between mid-June and early August (Dement'ev & Gladkov 1954). In winter *rossorum* reaches southern and western Iran, occasionally Iraq, and eastwards to Pakistan (Vaurie 1959, Peters 1964).

From this summary, the subspecies most likely to occur in Arabia is *rossorum*. However, the Oman specimen is *bicolor*, a subspecies not previously known west of Pakistan, and it is of further interest that it showed gonadal and plumage evidence of recent breeding activity. However, the specimen is not exceptional in having worn plumage so early in the year. PRC examined all the males of both subspecies in BMNH which had been collected between January and May, and though most were in fresh plumage, there were significant exceptions:—

rossorum—3 ♂♂ from Afghanistan 30 March, 13 April, 18 April—all with worn wings and tail; 1 juv from Afghanistan (Khandahar) 29 March —plumage spotted brown and white and therefore indicative of breeding in February.

bicolor—3 ♂♂ 5 March, 26 April, 8 May—all with worn wings and tail.

We conclude from this that breeding in *rossorum* and *bicolor* starts, at least occasionally, much ealier than the available literature suggests; and that the Oman bird, having bred in the west of its range very early in 1983, then wandered, or was carried by the NE monsoon winds or a storm, further west.

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Notes on Philippine birds, 1

The status of *Porzana paykullii* in the Philippines

by E. C. Dickinson

Received 7 October 1983

The sole Philippine record of the Band-bellied Crake *Porzana* (=*Rallina*) *paykullii* is that of the Steere Expedition which reported taking one in November 1887 in Basilan (Steere 1890). Whilst looking unsuccessfully in the British Museum (Natural History) (BMNH) collection for a specimen of *Rallina fasciata* that Everett took in Balabac in 1893, a specimen (BM 1896.6.6.1269) of *Rallina fasciata* was found from Basilan, collected by the Steere Expedition on 19 November (1887).

When later, reviewing the literature, it was noted that Steere claimed no record of *Rallina fasciata* from Basilan, it seemed probable that due to the similarity of these 2 species a misidentification had occurred. Mr. Derek Read at the BMNH kindly re-examined the facts and writes: "I have examined our entire series of these two species and have arrived at the same conclusion i.e. we appear only to have one relevant specimen (the one you found). It is clearly *R. fasciata*; although underparts are very similar in both species, the colour of the back, and the wing markings, as well as size, easily separates the Basilan skin as *R. fasciata*." The Museum register shows that BM 1896.6.6. 1269) was originally entered as *Rallina fasciata*.

On the basis of this, *Porzana paykullii* must be deleted from the Philippine list. It may well be added again one day as the species has recently been taken in Hong Kong (Hong Kong Bird Report 1977; specimen now in BMNH).

Acknowledgements. Grateful thanks are extended to the authorities at the British Museum (Nat. Hist.), and to Derek Read in particular for verification; also to Robert S. Kennedy for discussion.

Referenec:
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Address: E. C. Dickinson, Chemin du Chano 8, 1802 Corseaux, Switzerland.

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Notes on Philippine birds, 2

A second Philippine record of *Sterna bernsteini*

by E. C. Dickinson & S. Eck

Received 7 October 1983

Mees (1975) demonstrated that the Chinese Crested Tern should be known as *Sterna bernsteini* Schlegel rather than *Sterna zimmermanni* Reichenow. In a review of its distribution he pointed out that the sole record from the Philippines was a skin at Harvard in the Museum of Comparative Zoology collected by Governor Cameron Forbes, but unfortunately without locality or collecting date.

There is an unreported skin (C. 20608) in the Staatliches Museum für Tierkunde, Dresden. Collected in Manila Bay on 6 May 1905 it reached Dresden by exchange in 1910, from the Philippine Museum, Manila. Richard C. McGregor, author of 'A Manual of Philippine Birds' (1909–10) and ornithologist at the museum, was a friend and sometime field companion of Governor Forbes and this specimen was no doubt taken by him or his staff—quite possibly together with the specimen now at Harvard. Although no doubt has ever been cast on the Philippine provenance of Forbes's specimen it is good to have the confirmation that this additional record provides.

The original label, of C. 20608, is marked "bill chrome yellow at base, terminal half black" and the following measurements have been taken: wing 305 mm, bill from feathers on forehead 60 mm, terminal black part 24 mm.

Acknowledgements. The authors would like to thank Murray Bruce for stimulating the exchange of letters about this specimen that led to this note.

Reference:
Mees, G. F. 1975. Identiteit en status van *Sterna bernsteini* Schlegel. *Ardea* 63: 78–86.

Addresses: E. C. Dickinson, Chemin du Chano 8, 1802 Corseaux, Switzerland; Siegfried Eck, Konservator, Staatliches Museum für Tierkunde, Augustusstrasse 2, 8010 Dresden, DDR.

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The occurence of migrant and vagrant terns at Aldabra Atoll, Indian Ocean

by R. P. *Prŷs-Jones*

Received 30 September 1983

Five species of terns breed at Aldabra Atoll (9°24′S, 46°20′E): the Caspian *Sterna caspia*, Great Crested *S. bergii*, Black-naped *S. sumatrana* and Fairy *Gygis alba* Terns and the Common Noddy *Anous stolidus* (Diamond 1971). In addition, Diamond, who spent just over a year on Aldabra during the late 1960s, summarised information on the 3 non-breeding species of tern which had been recorded up to the end of his visits. The aim of the present paper is to update information on non-breeding species on the basis of records I made over the periods July 1974–June 1975 and November 1975–February 1977. Two species new for Aldabra were observed during this time. Aldabra place names mentioned below are depicted on a detailed map facing p.264 in Stoddart & Westoll (1979).

LESSER CRESTED TERN *Sterna bengalensis*

Diamond regularly recorded this species between January and early April, but I failed to observe it, though I may have overlooked individuals among roosting groups of the resident Great Crested Tern, which I normally did not examine closely. The species is a common non-breeding visitor to Kenya and Tanzania (Britton 1977a) and is the most abundant tern in Madagascar (Rand 1936), probably breeding there in June and July (Milon *et al.* 1973).

COMMON TERN *Sterna hirundo*

A single individual, seen and photographed by G. Hill, M.S. and O. E. Prŷs-Jones, and myself on 12 December 1976 is the first record for Aldabra. The bird was roosting among Black-naped Terns on one of the Iles Chaland islets at the western end of the Aldabra lagoon, and was not seen in flight. Surprisingly, in view of the date, the bird was in full adult breeding plumage and, also perhaps surprisingly, it appeared little, if any, larger than the accompanying Black-naped Terns. None of the observers was confident as to its identification, which is a product of subsequent study of colour slides by numerous competent authorities (see Acknowledgements). Although there is apparently no published record from anywhere within the Seychelles, the species is quite common along the East African coast between December and April (Britton 1977a) and in northwest Madagascar in December and January (Rand 1936, Milon *et al.* 1973).

SOOTY TERN *Sterna fuscata*

All my observations, mostly between June and August, comprised small groups of less than 10 individuals, confirming Diamond's impression that the species occurs most frequently at Aldabra during the season of the southeast trades (May–October). The Sooty Tern is probably the commonest and most widespread pelagic seabird in the western Indian Ocean (Bailey 1968, Parker 1970), the nearest breeding colonies to Aldabra being at Latham Island to the west (Gerhart & Turner 1978), Iles Glorieuses to the south (Benson *et al.* 1975) and, closest of all, Cosmoledo to the east (Bayne *et al.* 1970, Parker 1970).

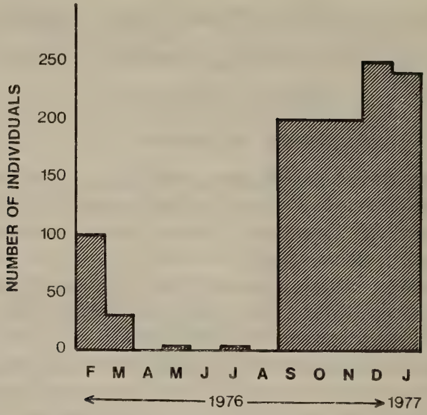

Fig. 1. Maximum numbers of Little Terns *Sterna albifrons* seen simultaneously at Aldabra in each month, February 1976 to January 1977 inclusive. Data for January 1977 from G. Hill (*pers. comm.*).

Little Tern *Sterna albifrons*

Contrary to the suggestion of Gaymer (1967), there is no evidence that this species ever breeds on Aldabra although it is a common visitor. Figure 1 gives the maximum number of individuals that I recorded simultaneously for each month between February 1976 and January 1977 inclusive, a period over which I endeavoured to keep a full record of sightings. All counts of more than a dozen birds were made at Cinq Cases, on the eastern coast of Aldabra, where there was a regular large roost on the coastal grassland or adjacent reef flat during the 6 months September–February; the maximum recorded at one time was c. 250. Diamond, who noted that most flocks he saw were roosting on lagoon sand flats at low tide, estimated the total population at 200 birds, but only observed the species in large numbers between January and March. However, Gaymer (1967) saw c. 100 along the northern coast of Aldabra in November, I recorded 250 Little Terns at Cinq Cases in late November 1974, and Parker (1970) recorded a flock of 100 in October 1967 on neighbouring Assumption Island. In the Amirantes and central Seychelles Little Terns have been noted from August onwards, with large flocks present by September/October (Feare & Bourne 1978, Feare 1979), and in Madagascar are known to occur between November and March (Milon *et al.* 1973). The evidence therefore indicates that good numbers are normally present throughout the region well before the end of the year. Many individuals seen by Diamond were in immature plumage, as were the large majority of birds I observed. The nearest breeding grounds appear to be in southern Somalia (Britton 1977a), where the subspecies *S. a. saundersi* nests, but it is not at present clear whether the Aldabra birds belong to this subspecies, to *S. a. albifrons,* or to a combination of the two (cf. Feare & Bourne 1978, Clancey 1982).

Lesser Noddy *Anous tenuirostris*

A single individual, in very emaciated condition, which landed on a yacht within 10 km of the northwest coast of Aldabra on 28 October 1976, is the first record for the area. The bird, which died soon after capture and is now preserved in the British Museum (Nat. Hist.) (reg. no. 1983.3.1), is *A. t.*

tenuirostris (per G. S. Cowles), whose nearest breeding locality is in the Amirantes (Ridley & Percy 1958, Stoddart & Poore 1970). (Penny (1974) is incorrect in implying that within the Seychelles *A. t. tenuirostris* breeds only on the central islands.) Although the western Indian Ocean populations were formerly considered relatively sedentary, hundreds of Lesser Noddies have recently been found along the coasts of Kenya (Britton 1977b) and Somalia (Ash 1980), where no breeding colonies are known, and apparently non-breeding birds also occur on the west coast of Madagascar (Milon *et al.* 1973). Earlier occurrences of Lesser Noddies at Aldabra could easily have been overlooked among the thousands of Common Noddies present, but it is perhaps significant that this record was made in the middle of the period (August–December 1976) during which Lesser Noddies were first noted on the east African coast (Britton 1977b).

Acknowledgements. The data in this paper were collected while I was attached to the British Museum (Natural History) and financed by the Natural Environment Research Council. The Royal Society provided facilities at Aldabra. P. Grant, P. Harrison, past and present members of the East African Rarities Committee and FitzPatrick Institute, and other referees examined slides of the Common Tern. R. K. Brooke commented on the manuscript. To all the above I am most grateful.

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Books Received

Gallagher, M. & Woodcock, M. W. 1980. *The Birds of Oman.* Pp. 310, 120 colour plates. Quartet Books. Paperback. £12.50.

A reprinting with soft covers of the whole original hardback edition (at £37.50, see review in *Ibis* 124: 216–7). An essential reference work, beautifully illustrated and very good value at this price.

Feare, C. 1984. *The Starling.* Pp. 315, 8 pages of photographs, numerous tables, figures and line drawings and 21 pages of references. Oxford University Press. £15.

A detailed and comprehensive account of *Sturnus vulgaris,* perhaps the most successful bird, biologically speaking, in the world, discussed in relation to habitat choice, annual cycles, behaviour, breeding, feeding, flocking and roosting, tracing its origins as an arboreal, largely fruit-eating ancestor, probably from southeast Asia, to its world-wide (including introductions) present day distribution and ground-dwelling and omnivorous habits. The text, despite the lightness of the chapter headings (e.g. Ostentation, A Time to Die, A Balanced Diet), is written more nearly as a textbook for students, but nevertheless is commendably free of jargon. The book is a successful presentation of what must be almost all that is known scientifically of this well recognised bird.

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British Ornithologists' Club

Edited by

Dr. J. F. MONK

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Volume 104 No. 3 September 1984

FORTHCOMING MEETINGS

Tuesday, 20 November 1984, at 6.20 p.m. for 7 p.m. in the Senior Common Room, South Side, Imperial College, Prince's Gardens, London, S.W.7, **Dr Clive Catchpole** of Bedford College, University of London, will speak on **Evolution of Bird Song.** Those wishing to attend should send their acceptance with a cheque for £7.30 a person to reach the Hon. Secretary at 2 Chestnut Lane, Sevenoaks, Kent TN13 3AR [telephone Sevenoaks (0732) 450313] not later than first post on Thursday, 15 November.

Tuesday, 11 December 1984, at 6.20 p.m. for 7 p.m. at the same venue, **Dr Ian Newton** of the Institute of Terrestrial Ecology, Monks Wood Experimental Station, and noted for his work on the Sparrowhawk, will speak on **Recent Studies of Sparrowhawks.** Those wishing to attend should send their acceptances with a cheque for £7.30 a person to reach the Hon. Secretary (address above) not later than first post on Thursday, 6 December.

Tuesday, 15 January 1985, at 6.20 p.m. for 7 p.m. at the same venue, **Dr Alan Knox** of the British Museum (Natural History), Tring and lately of Aberdeen will speak on **Crossbills.** Those wishing to attend should send their acceptance with a cheque for £7.30 a person to reach the Hon. Secretary (address above) not later than first post on Thursday, 10 January 1985.

We are fortunate in having as speakers at our next three Meetings Dr Catchpole, Dr Newton and Dr Knox, who are all widely known for their work on the subjects on which they will be speaking.

March 1985. The name of the speaker will be announced in the next number of the Bulletin.

May 1985. The name of the speaker will be announced in the next number of the Bulletin.

Tuesday, 2 July 1985. Dr Brian Wood will speak on **Waterfowl Conservation and Wetland Management in Tunisia and Algeria.**

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Bulletin of the
BRITISH ORNITHOLOGISTS' CLUB

Vol. 104 No. 3 Published: 20 September 1984

The seven hundred and fifty-fourth Meeting of the Club was held in the Senior Common Room, South Side, Imperial College, London, S.W.7 on Tuesday, 3 July 1984 at 7 p.m. The attendance was 23 Members and 12 guests.

Members present were: B. GRAY (Chairman), Dr G. BEVEN, Mrs DIANA BRADLEY, P. A. BROWN, D. R. CALDER, R. D. CHANCELLOR, S. J. W. COLES, P. J. CONDER, R. A. N. CROUCHER, Sir HUGH ELLIOTT, A. GIBBS, D. GRIFFIN, M. C. HODGSON, P. HOGG, R. H. KETTLE, Dr A. G. KNOX, J. KING, Dr J. F. MONK, J. G. PARKER, R. E. F. PEAL, R. E. SCOTT, S. A. H. STATHAM and C. E. WHEELER

Guests present were: Mrs SUZANNE BEVEN, Dr C. C. H. ELLIOTT, Mrs MARIE-THERESE ELLIOTT, P. HAYMAN, Mrs JOANNA HOGG, M. MORTON, Mrs ELIZABETH PEAL, J. A. RANDALL, Dr A. S. RICHFORD, Mrs JO RICHFORD, Mrs ANN SCOTT and Mrs C. E. WHEELER.

Dr A. S. Richford spoke on "Black Vultures in Majorca" and an abstract of his address, which he has kindly prepared, will be published in a future number of the *Bulletin*.

Predation by Pied Crows *Corvus albus* on Gambian Epauletted Fruit Bats *Epomophorus gambianus*

by M. E. Smalley

Received 27 October 1983

Rosevear (1965) records a West African specimen of the Gambian Epauletted Fruit Bat *Epomophorus gambianus* that had been captured by a crow, presumably a Pied Crow *Corvus albus*. At first sight capture of bats by *C. albus* seems unlikely, because the crows feed largely on the ground, taking immobile or slowly moving food items. Indeed, they are primarily vegetarians, although they will scavenge both plant and animal matter. When they do act as predators it is usually on sick animals or those that have difficulty escaping (Brooke & Grobler 1973, Gwahaba 1975).

There are recent reports of raptors, other than the Bat Hawk *Macheirhamphus alcinus*, taking bats. Spotted Eagle Owls *Bubo africanus* and Black Kites *Milvus migrans* have taken fruit bats (Kingdon 1974), and several birds of prey capture small insectivorous bats as they emerge from confined day time roosts (Pettet 1976, Cyrus 1983, Hanmer 1983, Stephens & Blackwood 1983). *C. albus* has also, once, been recorded swooping down and capturing a small serotine bat, *Eptesicus copensis* (Brooke & Grobler 1973).

During a study of the birds on a campus (13° 40'N, 16° 50'W) in The Gambia, West Africa, 1978-1981, I saw *C. albus* attacking adult *E. gambianus* 4 times: 9 and 12 June 1978, 1 December 1978 and 23 June 1981. On each occasion the bat was on the ground, lying on its back apparently helpless while a Pied Crow jabbed at it with its beak. Such was the noise made by the bat that on each occasion the crow was eventually disturbed by a dog rushing to investigate. The crow was silent. The noise also attracted, on different days, Beautiful Sunbirds

Nectarinia pulchella, Scarlet-chested Sunbirds *N. senegalensis* and common Bulbuls *Pycnonotus barbatus,* all of which gave their own alarm calls from nearby perches.

The blows of the crows were randomly directed, and caused relatively little external damage considering the force and frequency of the jabbing. Only 2 of the 4 bats showed external injuries; one had a small tear in a wing membrane, but another sustained extensive wounds about the neck and thorax. This was the only bat to have a youngster, uninjured, clinging to its belly.

The crows must have caught the bats in their daytime resting sites, since the attacks occured between 0800 and 1145 hrs, long after the bats had gone to roost, which they do in loose groups in tall trees (Marshall & McWilliam 1982). Bats were regularly heard on the campus calling from trees such as *Peltophorum* sp., Mango *Mangifera indica* and Neem *Azadirachta indica.* Although crows were watched walking and deliberately searching along branches of trees, the capture of a resting bat was not observed. However a crow was seen, once, to fly from a *Peltophorum* tree to a Baobab *Adansonia digitata* carrying a screaming bat in its feet. The two were lost to sight, but the bat obviously escaped since the alarm calls stopped and the crow flew away without its prey. *C. albus* has been described systematically searching palm leaves for nesting Palm Swifts *Cypsiurus parvus* and capturing the sitting adult swift (Ade 1975); and Benson (1946) watched *C. albus* seizing a sleeping fruit bat from a *Khaya niassica* tree.

Although *C. albus* is clearly not an efficient hunter of *E. gambianus,* some bats were killed; 3 times crows were seen with freshly killed bats — 13 and 22 June 1978 and 21 June 1981. Twice the crow was feeding on the bat on the ground, and once the dead bat was being carried in flight. Seven of the 8 incidents involving *E. gambianus* occured during June. On the campus, *C. albus* began nest building in February or March and usually had young in the nest during May or June (Gore 1981 and pers. obs.). So, whilst frequently unsuccessful, predation on the bat does succeed and is attempted most often when *C. albus* is feeding its young.

It is interesting that *C. albus* was never seen to attack the fruit bat *Eidolon helvum* which roosted in large numbers in Rhun Palms *Borassus aethiopium,* the campus tree most often used by the crows for nesting. Most Pied Crows weigh 500-600g (Gwahaba 1975), *E. gambianus* 100-200g (Marshall & McWilliam 1982, D. Pye) and *E. helvum* 250-311g (Kingdon 1974). Clearly a bat weighing up to 30% of the crow's body weight was potential prey, whilst one weighing almost 50% was not.

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A specimen record of Hume's Tawny Owl *Strix butleri* from Egypt

by Steven M. Goodman & Hesham Sabry

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Hume's Tawny Owl *Strix butleri* has been regarded as one of the least known birds of the Middle East (eg. by Hüe & Etchécopar 1970, Harrison 1982). However, recent work has shown it to be not uncommon in some desert regions of the Middle East near permanent water sources. Leshem (1981) noted 31 places where the bird had been recorded: 18 in the Judean Desert, 9 in the Negev Desert and 4 from the Sinai Peninsula. It has also recently been recorded on the Arabian Peninsula from near Jidda south to North Yemen and in the north central desert region (Jennings 1981). Thus, although the specimen reported here appears to be the first record of this species from the African continent, its occurrence in the Egyptian Red Sea mountains is not totally unexpected.

Collection of specimen and description of the locality

On 16 February 1982 while camping near the Roman ruins of Medinet Nugrus (24° 37′N, 34° 47′E), in Wadi Nugrus, a northern spur of Wadi Gemel, c. 54 km west of the Red Sea tarmac road, Egypt, H. S. observed a medium-sized owl after sunset fly from a rock 10 m from camp. He pursued the bird and found it perched on another rock 25 m from camp, where it was subsequently collected. The owl was not shy and allowed human approach to within 20 m. Its sex was not determined. The specimen was prepared as a flat skin and is housed in the private collection of H. S., Maadi, Egypt. After comparison with published descriptions and a specimen in the Giza Zoological Museum, the bird was identified as Hume's Tawny Owl (measurements presented in Table 1).

The area surrounding Medinet Nugrus is typical of the Egyptian Red Sea mountains — worn, north-south oriented peaks of igneous and metamorphic formations, separated by sand and rock-filled wadis. At approximately 24° 25′N, 34° 36′E the mountain chain is broken by a lower plain which is transversed to the east by Wadi Gemel and to the west by Wadi Natash. The major peaks and ridges bordering this lower plain and in the tributary systems of Wadi Gemel near Medinet Nugrus include (m above sea-level): to the north Gebel Hafafit (1320), Gebel Sikeit (769) and Gebel Zabara (1360), and to the south Gebel el Mukhattata (570) and Gebel Umm Riqeiba (568). There are several fresh water wells in the general area of Medinet Nugrus.

The vegetation of the region is principally confined to the catchments of the wadi drainage systems. In Wadi Nugrus near Medinet Nugrus, the principal plant, although widely scattered, was the tree *Acacia raddiana*. In the outlying portions of the wadi, acacia trees were more plentiful and some sparse ground vegetation was also present; in this area, particularly under and around trees, small mammal burrows were noted. The rodents known from this region of the Red Sea mountains are *Gerbillus gerbillus, Meriones crassus, Sekeetamys calurus* and *Acomys cahirinus* (Osborn & Helmy 1980). It is interesting to note that bones of all of these genera have been identified from pellets collected below Hume's Tawny Owl roosts in Wadi Nekarot, Negev Desert (Leshem 1981).

SUMMARY OF PREVIOUS RECORDS AND SPECIMENS

Museum catalogue numbers of measured specimens are given in Table 1. AMNH=American Museum of Natural History, New York. BMNH=British Museum (Natural History), Tring. GZM=Giza Zoological Museum, Giza. MCZ=Museum of Comparative Zoology, Cambridge, Massachusetts. TAUM=Tel Aviv University Museum, Tel Aviv. ZFMK=Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn. ZM-HUJ=Zoological Museum, Hebrew University of Jerusalem, Jerusalem.

Southern Iran (formerly British Baluchistan)

Other than the type specimen (BMNH) taken on an unspecified date, and presumed to be from Ormara (25° 10′N, 64° 34′E), along the Mehrakan coast by Hume (1878), we are not aware of any records of *S. butleri* in southern Iran or western Pakistan (Scott *et al.* 1975). However, Ticehurst (1927) raised the valid point that since many naturalists have worked in this region and none have reported this species, it is probably only a vagrant to the area. In fact, in Hume's (1878) description of *Strix butleri,* no type locality was formally designated and he stated, "He [E. A. Butler] procured it for me through one of his friends, Mr. Nash, I believe from Omara [sic], on the Mekran Coast." Considering the vagueness of this statement and the lack of later records from this region it seems possible that the assumed locality is incorrect, the type specimen was collected elsewhere, and that this species has never been recorded in southern Iran.

Arabian Peninsula

On 16 August 1950 a Mr. Adams collected a male (BMNH) at Mahd Dhahab gold mine (23° 29′N, 40° 50′E), c. 250 miles NNE of Jidda, Saudi Arabia (Meinertzhagen 1954). Notes on the specimen's data tag include, "irides: orange-yellow, beak: slate & horn, toes: bristled, claws black, legs: feathered". Recently the species has been recorded south of Medina at Mussajidd (24° 05′N, 39° 05′E), south along the coastal plain and the mountains paralleling the Red Sea coast into northern North Yemen, and east through the northern Hejez mountains and north central desert from Buraydah (26° 20′N, 43° 59′E) south to at least the Riyadh area (24° 39′N, 46° 46′E) (Jennings 1981). On 17 July 1975, Jennings (1977) captured a juvenile ("still had traces of fluff round its neck") along the Tuwayq escarpment (c. 23°N, 46°E), central Saudi Arabia. It has also been recorded in the Asir Province, north of the North Yemen border at Jebel Suda (18° 15′N, 42° 25′E) (Jennings 1981). Tentative records of this species, based on vocalizations, from Dhofar Province, Oman include: one near Salala (17° 00′N, 54° 04′E) (Jennings 1977) and another on 13 January 1978 near Gebel Qara (16° 50′N, 54° 00′E) (Walker 1981). Feather remains attributed to this species were recently found north of the Saudi Arabian border in Jordan, in Wadi Ma'an el Aqaba, 10 km south of Aqaba (Steinbacher 1979).

Judean Desert

It appears to be widely distributed in the vicinity of Jerusalem and in the wadis draining into the Jordan Valley and Dead Sea. Specimens collected in this region include: a pair (AMNH 631939 and 631940) on 18 November 1930 in Wadi Suweinat (31° 51′N, 35° 17′E); a female (BMNH) on 28 March 1938, feather remains of one individual on 10 November 1944 (?) (TAUM 3411 Hardy 1946) and a sight record on 21 April 1946 (Hardy 1946) in Wadi el Qilt (31° 50′N, 35° 33′E); a male (ZFMK) on 8 January 1931 at En Fara (31° 50′N, 35° 18′E); a female (ZM-HUJ) on 7 January 1973 at En Geddi (31° 28′N, 35° 22′E); a female (ZM-HUJ) on an unspecified date at Jerusalem; an unsexed bird (TAUM 8733, not measured, preserved in fluid) on 25 January 1975 at Nahal Ze'elim (31° 12′N, 34° 32′E); and an unsexed juvenile (TAUM) on 31 May 1978 at the junctions of Wadi Mashash and Wadi Halhul (31° 35′N, 35° 22′E). In March 1973 Leshem (1981) found a lightly coloured young bird on a cliff in Wadi Fatzael [=Fasayil] (32° 02′N, 35° 26′E), in the Jordan Valley. Aharoni (1931) collected 5 specimens in the mountains southeast of Jerusalem, and at least 2 of these (from Wadi Suweinat) are mentioned above.

Negev Desert

Leshem (1981) found pellet remains of this species below a roosting site in Wadi Nekarot (30° 30′N, 34° 50′E). A female (TAUM 4928, not measured) was collected at En Mor (30° 50′N, 34° 47′E) on 17 January 1963 and preserved as a mounted specimen.

Sinai

While working in this region during 1864 Wyatt (1870) heard an owl in "Wády Hebrán" and "perhaps half a dozen times" on the Sinai Peninsula, and collected a Hume's Tawny Owl in Wadi Feiran (28° 43′N, 33° 35′E). This specimen, which Wyatt attributed to *Phasmoptynx* [*Asio*] *capensis,* is housed in the Liverpool Museum (Ticehurst 1927). Other specimens collected in Wadi Feiran include: a male (ZFMK) taken on 23 September 1911 (le Roi 1923); a male (MCZ 65806) on 31 March 1914 (Phillips 1915); and a female (GZM) on 16 June 1939. Tristram (1879) reported that he had a specimen of this species in his collection that was obtained on Mount Sinai (=Gebel Musa, 28° 32′N, 33° 59′E) 10 years before Hume's (1878) description. Other Sinai Peninsula specimens include a female (ZM-HUJ) collected on 17 May 1970 at Saint Katherina (28° 31′N, 33° 57′E) and a mummified specimen (TAUM 9373, not measured) found on 5 September 1976 in Wadi Watir (29° 01′N, 34° 40′E), 7 km west of Nuweiba.

SEXUAL DIMORPHISM AND GEOGRAPHIC VARIATION

Although the sample sizes are small, there does not appear to be pronounced sexual size dimorphism in this species (Table 2). Females tend to have slightly longer tails, tarsi and bills (approximately 3 to 7% difference between the sexes). The finding that the wing measures longer in the males is almost certainly an artifact resulting from the small number of specimens measured. The degree of sexual size dimorphism in *S. butleri* parallels that in the closely related species *S. aluco,* in which the skeleton of females averages 2 to 7% larger than males (Winde 1978). There appear to be no obvious geographical differences in size, and the Egyptian specimen falls within the range of variation of birds collected in other areas. It should be noted that the wing measurements given by Mendelssohn *et al.* (1975) of 4 females as 310, 315, 322 and 340 and 2 unsexed birds as 285 and 295 are erroneous (cf. Table 1).

TABLE 1.

Measurements and wing structure of Hume's Tawny Owl *Strix butleri* specimens examined[1].

specimen	sex	weight	wing (arc)	notched primaries	primary lengths	tail	tarsus	ban[2]	gonys
Egypt									
Medinet Nugrus, 16.ii.1982	?	—	247	2-5	3=4=5, 2=6	140	58	14.1	8.0
Sinai Peninsula									
Wadi Feiran, 16.vi.1939 GZM A2824	♀	—	243	2-5	3<4=5, 2=6	137	—	15.8	8.6
Wadi Feiran, 23.ix.1911 ZFMK	♂	—	c.240	2-5	3=4>5, 2=6	137	—	13.0	—
Saint Katherina, 17.v.1970 ZM-HUJ 817	♀	220	244	2-5	3=4>5, 2>6	142	53	14.1	7.8
Judean Desert									
near Jerusalem, no date ZM-HUJ 541	♀	—	248	2-5	3=5<4, 2=6	140	—	15.0	8.0
Wadi el Qilt, 28.iii.1938 BMNH 1965.M.5236	♀	—	255	2-5	3=5<4, 2>6	139	60	13.9	8.0
En Geddi, 7.i.1973 ZM-HUJ 1468	♀	214	249	2-5	3=4>5, 2>6	138	59	14.3	7.8
En Fara, 8.i.1931 ZFMK	♂	—	250	2-5	3=4>5, 2>6	136	51	14.3	—
Wadi Mashash, 31.v.1978 TAUM 9428	? imm.[3]	215	251	2-5	4>3>5[4]	144	55	16.1	10.0
Southern Iran (?)									
Omara, Mehrakan coast, no date BMNH 86.2.1.994, type specimen	?	—	256	2-5	3=4>5, 2=5	c.136	58	14.3	8.6
Saudi Arabia									
Mahd Dhahab, 16.viii.1950 BMNH 1965.M.5236	♂	—	251	2-5	3=5<4, 2>6	137	56	15.4	8.9
no locality, no date ZM-HUJ 819	?	—	249	2-5	3=5<4, 2=6	132	59	13.3	8.3

[1] Linear measurements in mm and weight in gms. [2] ban=length of the bill from the anterior edge of the nostril to distal tip. [3] In the closely related species *S. aluco*, juveniles and adults show no significant differences in measurements (Glotz von Blotzheim & Bauer 1980). [4] Primary feathers 6 and 7 in moult, tip.

TABLE 2.
Summary of measurements (mm) of Hume's Tawny Owl *Strix butleri* specimens examined[1].

material	wing (arc)	tail	tarsus	ban[2]	gonys
Medinet Nugrus specimen	247	140	58	14.1	8.0
Other specimens					
males	250.5, 2 250-251	136.3, 3 136-137	53.5, 2 51-56	14.2, 3 13.0-15.4	8.9, 1
females	247.8, 5 243-255	139.2, 5 137-142	57.3, 3 53-60	14.6, 5 13.9-15.8	8.0, 5 7.8-8.6
unsexed	252.0, 3 249-256	138.0, 2 132-144	57.3, 3 55-59	14.6, 3 13.3-16.1	8.9, 3 8.3-10.0
combined	249.6, 10 243-256	138.2, 10 132-144	56.4, 8 51-60	14.5, 11 13.0-16.1	8.4, 9 7.8-10.0

[1] Order of measurements:— mean, number of specimens and range.
[2] ban=length of bill from anterior edge of nostril to distal tip.

No apparent sexual difference in the wing formulae was noted. In both sexes primary feathers 2-5 were notched, although in a few cases the fifth only showed a slight emargination. The longest primary varied; in most cases it was the fourth or the fourth was equal in length to the third or fifth. The variation in primary length showed no sexual differences. The wing formula of the Egyptian specimen was unique in that primary feathers 3-5 were equal in length.

Since we know so little about plumage sequence in this species, it is premature to associate any differences in colour variation with sexual or geographical variation. However, it should be noted that the ground colour of the body feathers shows considerable variation, from chocolate-brown in the Mahd Dhahab specimen to rufous-red in the type specimen. Further, young birds tend to be distinctly light in colour (Wadi Mashash specimen — Leshem 1981).

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Weights of birds from Balmoral, Zambia

by M. A. Peirce

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Few data are available on the weights of Zambian birds (White 1948, Dowsett 1965, Britton & Dowsett 1969). During a study of haematozoa in Zambian birds (Peirce 1984), most birds were weighed to determine primarily if there was any significant relationship between weight and infection.

The netting site was at Balmoral, c.25km southwest of Lusaka at 15° 33′S, 28° 12′E and 1250 m a.s.l, in an area of miombo (*Brachystegia*) woodland typical of that covering much of the country. Table 1 records the weights of 584 birds of 90 species, sampled between 1980-82.

Allowing for the various factors that may influence the weights of birds (Hanmer 1979), there was generally no relationship between weight and infection with haematozoa (Peirce in prep.). The one notable exception was a *Turtur chalcospilos* found sick and lethargic on the ground and making no attempt to fly-off when approached, and subsequently found to have a high parasitaemia with *Leucocytozoon marchouxi* and a low parasitaemia with *Haemoproteus columbae* (Peirce 1984). This bird weighed only 47g — about 25% below the mean for the species at Balmoral. The low weight was in this case considered consequential to the haematozoan infection.

TABLE 1

Weights of birds at Balmoral (15° 33′S, 28° 12′E) at 1250 m a.s.l, Zambia

Individual weights are given for species with less than 3 records. The figure in parenthesis after the scientific name shows the number of individuals weighed if more than 3. All weights are in gms — range followed by mean in parenthesis.

Streptopelia capicola	127.5
Turtur chalcospilos (4)	57.0-66.5 (62.9)
Chrysococcyx klaas	30
C. cupreus	43.5 ♀
Caprimulgus europaeus	72, 73, 85.5 ♀♀
Macrodipteryx vexillarius	70 ♀
Halcyon chelicuti	38
H. leucocephala	38, 42, 49.5
Merops pusillus	13
Lybius torquatus	55.5
Pogoniulus chrysoconus	12.5
Indicator indicator	45.5, 52.0 ♂♂
I. minor	26.5, 28
Dendropicos fuscescens	27 ♀, 27.5 ♂
Delichon urbica	13.5
Dicrurus adsimilis (6)	38-47 (42.2)
Oriolus oriolus	66.5
Parus griseiventris (5)	14.0-16.5 (15.5)
P. niger	19, 21, 21
P. leucomelas	19.5
P. rufiventris	16, 19, 19.5
Salpornis spilonota	13.5, 15.0, 15.5
Campephaga phoenicea	30, 32 ♂♂, 34
Pycnonotus barbatus naumanni (14)	32.0-39.5 (35.5)
Phyllastrephus cerviniventris (4)	23.5-28.5 (26.0)
P. cabanisi	33.5
Cercomela familiaris (8)	17.5-20.5 (18.5)
Monticola angolensis	41.5, 42.5, 48
Erythropygia leucophrys	15
Cossypha natalensis	29
C. heuglini (4)	29-40 (33.9)
Turdus libonyana (6)	51-69 (58.5)
Locustella fluviatilis	15.5
Acrocephalus schoenobaenus	9
A. palustris	10.5
A. scirpaceus	27
Hipploais icterina	14
Sylvia borin (6)	16.5-20.5 (18.5)
Phylloscopus trochilus (15)	7-10 (8.7)
Prinia subflava (6)	8-10 (8.7)
Camaroptera brachyura sharpei (7)	9.0-12.5 (11.1)
Eromomela scotops	8.5
Cisticola erythrops	13, 16
C. fulvicapilla (4)	7.5-9.0 (8.1)
Muscicapa striata (8)	15.0-18.5 (16.7)
M. caerulescens (5)	18.5-22.5 (20.0)
Melaenornis pammelaina (4)	29.0-29.5 (29.1)
Bradornis pallidus (9)	21-29 (23.5)
Batis molitor	(4♂♂) 11.0; (3♀♀) 10.0-10.5 (10.3)
Terpsiphone viridis	14.5 ♂; 13.5, 14.0, 16.5 ♀♀
Dryoscopus cubla (11)	22.5-29.5 (25.4)
Tchagra australis	31.5, 32.5
T. senegala (6)	47.5-61.0 (54.2)
Laniarius ferrugineus	51
Malaconotus blanchoti	76
Anthus novaeseelandiae	25.5
A. leucophrys	22, 26.5
A. similis (14)	21-26 (23.8)
Cinnyricinclus leucogaster	39.5 ♀, 41.5 ♂
Anthreptes longuemarei	11.5 ♂, 11.0J
Nectarinia olivacea	11.0
N. amethystina	(5♂♂) 10.5-11.0 (10.8); (6♀♀) 9-11 (10.1); (10J) 9-12 (10.5)
N. senegalensis	12, 13, 14 ♂♂; 11.5, 13, 14, ♀♀; (9J) 10-13.5 (11.2)
N. talatala	7.5 ♂
N. venusta	6.5, 7.0, ♀♀; 7.0 ♂
N. chalybea	7.0
N. bifasciata	6.5 ♀
N. cuprea	9.0, 9.0 ♀♀
Zosterops senegalensis (28)	7.5-10.0 (8.9)
Euplectes capensis (20♂♂)	16.5-25.5 (20.1); (12♀♀) 15-20 (17.9); (7juv) 16.5-21.0 (18.8),
E. ardens	17.5 ♀
Passer domesticus (9)	22-26 (24.2)
P. griseus	29.5, 35.5
Petronia superciliaris (10)	22-26 (24)
Vidua macroura	13.5 ♀
V. paradisea	15.0 ♀
V. orientalis	20 ♂
Pytilia afra (6)	15-18 (16.6)
P. melba (6)	16.0-17.5 (16.6)
Hypargos niveoguttatus	14.5 ♂
Lagonosticta rubricata	8.0, 9.5, 10
L. rhodopareia	9.0, 10 ♂♂
Uraeginthus angolensis (46)	8.5-11.5 (9.7)
Lonchura cucullata (51)	8-11 (9.2)
Emberiza cabanisi	25.0 ♀, 25.5 ♂
E. flaviventris	18.5, 19.0, 19.0
E. tahapisi (7)	12.5-15.0 (13.4)
Serinus mozambicus (58)	11.0-13.5 (12.0)
S. sulphuratus (49)	18-22 (19.5)
S. mennelli	14

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New subspecific taxa of African Cisticolas

by P. A. Clancey

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Critical examination of material of certain African cisticolas *Cisticola* spp. in the collection of the British Museum (Nat. Hist.) (BMNH) during the course of a month's visit to that centre in October 1983, most of the speciments there having been collected by that great expert on the group in the years between the wars, the late Rear-Admiral Hubert Lynes, has revealed the desirability of recognising 3 additional subspecific taxa. These are formally described below. For facilities while working at Tring I here acknowledge my deep indebtedness to Mr I. C. J. Galbraith and Mr P. R. Colston of the staff, who courteously met my various requirements.

Cisticola rufilata venustula subsp. nov.

Type. ♂, adult. In non-breeding dress. Mzimba, Malaŵi, at 4300 ft a.s.l. 28 July 1938. Collected for C. W. Benson. In the BMNH collection, B. M. Reg. No. 1939.2.25.155.

Description. Differs from adults in fresh non-breeding dress of the hygric *C.r. ansorgei* Neumann (described from Angola) in having the pileum Hazel (Ridgway, pl. xiv), *versus* Argus Brown (pl. iii), the mantle and scapulars much paler with substantially finer and lighter brown shaft-streaks, the fringes Isabella Color (pl. xxx), against Brownish Olive (same pl.) in *ansorgei*, and with the rump and upper tail-coverts lighter and greyer. Wings paler and tail more pinkish sandy. Over the underside lighter and warmer buff, the breast without the overlay of greyish olive present in *ansorgei*.

Differs from the desertic *C.r.rufilata* (Hartlaub) (proposed from northern South West Africa) in having the pileum a darker reddish ground, this sharply demarcated from the rest of the dorsum, and with the shaft-streaking over the mantle and scapulars much darker and heavier, the pale isabelline fringes imparting a more silvered aspect to the back. Otherwise, the facies is similar.

Measurements. Wings of 7 ♂♂ paratypes from Malaŵi 59-61.5 (av. 60.0) and 2 ♀♀ 55, 56; tails of 7 ♂♂ 50-55.5 (52.3); tails of 2 ♀♀ 47, 48mm.

Material examined. At BMNH *C.r. venustula* 29; *C.r. rufilata*, 10; *C.r. vicinior* Clancey, 17; *C.r. ansorgei*, 52. Also seen: 4 *C.r. venustula* from Okavango R. in Durban Museum.

Range. Occurs locally in *Terminalia* and similar scrub to the south of the range of *C.r. ansorgei* in southeastern Angola and Zambia in Barotse Province to Serenje and Mpika in the Central and Northern Districts, extending eastwards to central and northern Malaŵi at Mzimba and Dedza and adjacent northern Tete, Mozambique. In the west of its range reaches south to the Okavango R. on the Angola/ South West Africa border (*vide* Clancey 1980).

Measurements of the Type. Wing (flattened) 61, culmen from skull 15.5, tarsus 22, tail 54 mm.

Remarks. The distributions of the 3 others races of *C. rufilata* as determined at BMNH should now be restructured as follows:—

C.r. rufilata: Central and northern South West Africa (Namibia), the northern Cape (south to Kuruman), Botswana, and the arid west of Matabeleland (Zimbabwe). Perhaps to southwestern Angola.

C.r. vicinior: The plateau of Zimbabwe east of nominate *rufilata*, east to

Rusape, and south to the plateau of the Transvaal south as far as Rustenburg and Pretoria, and the southeastern corner of Botswana. (This is a marked southward extension of the range as given in the recent *S. A. O. S. Checklist* (Clancey (Ed.) 1980).

C.r. ansorgei: The moist highlands of Angola, east to the Zaïre/Zambesi watershed in southern Zaïre (Shaba) and adjacent Zambia. In the east of its range it reaches Kawambwa, to the south of L. Mweru on the Luapula R., and at Luwingu.

Two juvenile specimens of this cisticola from northern Lunda in Angola are very rufous above with no restriction of the said colour to the pileum. Such characters suggest the existence of a discrete population of a fifth subspecies, at present unnamed, in the north of Lunda, Angola, and in adjacent regions of the Kasai, Zaïre.

White (1962) incorrectly placed the Malaŵi population of the present cisticola in *C.r. ansorgei.*

Cisticola aridula eremica subsp. nov.

Type. ♂, adult. In freshly assumed non-breeding dress. Outpost, 33 miles S.W. of Kamanjab, Kaokoland (Kaokoveld), northwestern South West Africa, at 19° 48′S, 14° 39′E. Collected 26 April 1950 on the BMNH South West African Expedition. In the collection of the BMNH, B. M. Reg. No. 1950.50.576.

Description. Differs from the freshly assumed non-breeding dress of *C.a. kalahari* Ogilvie-Grant (named from the Molopo R. on the northeastern northern Cape/Botswana border) in having the dorsal shaft-streaking both broader and blacker, the light edges to the feathers Cream Color (pl. xvi), against Pinkish Buff (pl. xxix) shading to Clay Color (same pl.) adjacent to the dark shaft-streak; rump greyish cream as opposed to Clay Color in *kalahari.* Similar to *C.a. kalahari* over the ventral surface. Tail darker and greyer, less sandy. In wings, tertials blacker, the pale fringes more sharply etched against the dark centres. Similar in size.

The new taxon differs from *C.a. lobito* Lynes (described from the coastal desert of Angola, to which odd skins of *kalahari* in the BMNH have been incorrectly assigned) in its greater size: wings of ♂♂ *C.a. eremica* 50.5-53.5 *versus* 47-50 in ♂♂ *lobito,* and ♀♀ 46.5-49, against 43-46mm. Dorsally it has broader and more jet black shaft-streaking, the feather edges pale cream rather than near Buckthorn Brown (pl. xv) in *lobito.*

Measurements. Wings of ♂♂ 50.5-53.5; ♀♀ 46.5-49 mm.

Material examined. In BMNH *C.a. eremica,* 3; *C.a. kalahari,* 32; *C.a. caligina* Clancey, 17; *C.a. lobito,* 37. Also available material of *C.a. traylori* Benson & Irwin, *C.a. perplexa* White and *C.a. tanganyika* Lynes, and a further 13 ♂♀ *C.a. eremica* in southern African collections.

Range. Presently known from Kaokoland (Kaokoveld), northwestern South West Africa. Probably extends to western parts of Ovamboland and adjacent southwestern Angola to the south of the range of *C.a. lobito.*

Measurement of the Type. Wing 51, culmen 12.5, tarsus 20, tail 40 mm.

Remarks. The revised ranges of the other 2 of the 3 races of this dry country cisticola occurring in the South African Sub-Region are as follows:—

C.a. kalahari: Damaraland and Kavango, South West Africa, in the west from the Erongo Mts and the Waterberg southwards, Botswana (centred on the Kalahari), the northern and parts of the eastern Cape (south in the east to Aberdeen, Somerset East and Cradock), western Orange Free State, and arid western Transvaal and western Zimbabwe. In northeast to southern Barotse

Province, Zambia. There is some evidence from the material examined that some populations of this race are subject to post-breeding nomadism or else drought-related movements.

C.a. caligina: Transkei, Natal interior (mid-Tugela R. drainage), Zululand, eastern Swaziland, Mozambique in the south of Sul do Save, Transvaal (except arid western fringe) and the plateau of Zimbabwe. Also marginally to parts of southern Zambia, but limits in this sector not critically determined.

The small-sized, dorsally richly coloured *C.a. lobito* does not occur within the limits of the South African Sub-Region and appears to be restricted to the arid coastal strip of Angola.

Cisticola subruficapilla euroa subsp. nov.

Type. ♀, sub-adult, in recently moulted non-breeding dress. Fauresmith, Orange Free State, South Africa, at 5500 ft a.s.l. 24 June 1937. Collected by Rear-Admiral Hubert Lynes. In the BMNH collection, B.M. Reg. No. 1941.12.2.695.

Description. Is currently associated with *C.s. jamesi* Lynes, described from Mortimer on the mid-Great Fish R. in the interior of the eastern Cape, but differs subspecifically in having the pileum dull, more vinaceous, less fulvous, with the dark shaft-streaking vestigial or absent (prominent in *jamesi*); mantle and scapulars duller and greyer (about Light Brownish Olive (pl. xxx), *versus* Dresden Brown (pl.xv)), the dark shaft-streaking again virtually absent, and with the rump greyer. Rufous over the remiges duller, more reddish, less ochraceous-tawny. Size similar.

Compared with *C.s. karasensis* (Roberts) (named from the Karas Mtn ranges of southern South West Africa) is much less streaked or totally unstreaked on the head-top and back, which latter is browner, less grey. Differs sharply below, being less whitish over the ground of the breast, rather buffier, with the breast more heavily flecked with light olivaceous, and with the sides and flanks more overlaid with dusky olive.

Measurements. Wings of 4 ♂♂ 54-59 (56.3), tails 49-53 (51.5); 6 ♀♀ wings 50-52.5 (51.0), tails 44-48 (47.0) mm.

Material examined. In BMNH: *C.s. euroa,* 5; *C.s. jamesi,* 40; *C.s. subruficapilla* (Smith), 80; *C.s. subruficapilla* ≷ *C.s. jamesi* (Uitenhage and Port Elizabeth — Grahamstown), 50; *C.s. namaqua* Lynes, 30; *C.s. karasensis* (including *barbiensis* (Roberts)), 10; *C.s. windhoekensis* (Roberts), 20. Also a further 5 ♂♀ *C.s. euroa* in Durban Museum collection.

Range. Western Orange Free State (W. of c. 26° 30′E.) and the northeastern Cape along the middle Orange R., southwest in this sector to about De Aar, and west north of the Orange through Griqualand West to the Langeberg, southern Gordonia and the eastern parts of Bushmanland (at Pofadder).

Measurements of the Type: Wing 51, culmen 13, tarsus 18, tail 47.5 mm.

Remarks. C.s. jamesi is the subspecies of the Great and Little Karoos and the rainshadow areas of the main coastal ranges of the southern Cape mountains, east to the karoid country in the interior of the eastern Cape. It intergrades at the eastern end of the said ranges with the more hygric nominate subspecies between Uitenhage, Port Elizabeth and the Zwartkops estuary and Grahamstown. It is noteworthy that the coastal distribution of the nominate race of *C. subruficapilla* is effectively sundered by the valley of the Great Braak R., in the west of the southern Cape, where elements of *jamesi* thrust on to the coastal strip.

White (1962) incorrectly extended the range of *C.s. namaqua* east to the

Orange Free State to include the present new taxon. In the recent *S. A. O. S. Checklist* (Clancey (Ed.) 1980) it was associated in part with *jamesi*, as stated in the description. *C.s. namaqua* is restricted to the dry west of the Cape north of the Berg R.

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The status of *Alcedo semitorquata heuglini* Laubmann, 1925

by P. A. Clancey

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Subspecifically relevant variation in the Half-collared Kingfisher *Alcedo semitorquata* Swainson of the eastern and southern Afrotropics was first discussed by Laubmann (1925) and later commented on by Sclater (1930), Chapin (1939), Clancey (1951), Benson (1952) and again by Clancey (1978). In the 1978 paper, Clancey showed that variation in this species affects wing-length, bill mass and ventral colouration, and that 2 races are recognisable, these being nominate *A. semitorquata* of South Africa and *A.s. tephria* Clancey of eastern, central and west-central Africa. In the same contribution, Laubmann's *A.s. heuglini* was placed as a synonym of *A.s. semitorquata*, in effect rendering the latter polytopic in status. In October 1983, the opportunity was taken to re-examine variation in this kingfisher on the basis of the series in the British Museum (Nat. Hist.), (BMNH), with a view to determining the status of the isolated Ethiopian highlands population and as a correlate the validity of Laubmann's *heuglini*.

My studies at BMNH confirm that Ethiopian birds are not separable from those of South Africa on size: wings of 12 South African ♂♀ in BMNH were 82-86.5, 25 ♂♀ in southern African collections 82.5-88 mm, *versus* 83.5-89 mm in 7 ♂♀ from Ethiopia (BMNH). Ethiopian birds do, however, differ from the South African series in showing markedly less well-developed lateral half-collar panels, which in the southern form extend over an entire lateral third of the breast. While juvenile specimens were not available from Ethiopia, they will surely be found to resemble adults in the extent of the half-collar development, as is the case elsewhere. In my earlier studies I failed to appreciate the subspecific relevance of the variation in half-collar size, which showed up saliently in the BMNH material.

In so far as the half-collar character is concerned, Ethiopian *A. semitorquata* do not differ from those of East and central Africa and Angola, though they do differ in having longer wings: 83.5-89, against 78-84 mm. On the basis of greater size and spatially remote isolation *A.s. heuglini* can be usefully resuscitated from synonymy and recognised as a valid subspecies different from *A.s. tephria*. From the nominate subspecies of South Africa *A.s. heuglini* does not differ in size but does so on the basis of the much smaller half-collar panels, and it now seems desirable to recognise 3 subspecies of *A. semitorquata* as follows:

Alcedo semitorquata semitorquata Swainson, 1823: Great Fish R., eastern Cape Province.

Dark blue lateral half-collar panels extending one third over either side of the breast. Size large: wings of 12 ♂♀ in BMNH, 82-86.5 (83.9) mm. Juveniles show similar characters, but have the buffy centre to the breast scaled with dark blue.

Range. The southern and eastern Cape, Natal and Zululand, Swaziland, southern Mozambique (Lebombo Mts only), Orange Free State, and the Transvaal. Not recently recorded on the Orange R., where collected last century.

Note. 12 ♂♀ Cape topotypes measured by me in 1977 had wings 83.5-88 (av. 85.2) mm. A considerable proportion of the available skins from the Cape are markedly whitish over the ventral surfaces.

Alcedo semitorquata tephria Clancey, 1951: Zimbiti, near Beira, southern Mozambique.

Differs from *A.s. semitorquata* in having the half-collar panels both markedly reduced in size and paler blue in colour, resulting in a lighter ventral aspect. Size smaller: wings of 16 ♂♀ from Mozambique, southern Malaŵi, Tanzania and Zambia in BMNH, 78-83 (av. 80.3) mm. Bill rather finer (see details in Clancey 1978).

Range. Mozambique north of the Save R., eastern and northern Zimbabwe, Malaŵi, Tanzania, southeastern Kenya (Taveta), southeastern Zaïre, Zambia, and Angola on the plateau (but recorded Okavango R.).

Note. A juvenile at Tring *ex* the Meinertzhagen collection is labelled as having been taken in the Pesi Swamp, Kenya, but the locality may be erroneous as this is a kingfisher of clear, running streams.

Alcedo semitorquata heuglini Laubmann, 1925: Diredawa, Harar, southeastern Ethiopia.

Blue half-collar panels small as in *A.s. tephria* from which it differs in its greater size. Wings of 7 ♂♀ 83.5-89 (av 85.8) mm. Similar in size to the nominate subspecies, differing in having much smaller lateral half-collar panels which are also paler blue.

Range. An isolated population restricted to the highlands of Ethiopia: in the west of its range to Gamo-Gofa, in the south to Sidamo, and in the east to Harar (to 42° E.). (See also map in Snow (Ed.) 1978.)

Note. Based on a single specimen with a wing of 86 mm purchased from the London dealer, W. F. H. Rosenberg. Described under the combination *Alcedo (Caeruleornis) semitorquata heuglini*.

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A note on the avifauna of St. Helena, South Atlantic Ocean

by J. C. den Hartog

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In the frame-work of studies on Atlantic, tropical and subtropical shallow water sea anemones, I recently paid a short visit (4-18 June 1983) to St. Helena and I was able to pay some attention to its rather poor avifauna, of which only scattered information is available. The most recent review of the ornithology of the island was presented by Basilewsky (1970: 86-128). His bibliography, however, is not entirely complete, relevant papers by Pitman (1965) and Watson (1966) not being listed. In addition, several papers have been published since (Bourne & Dixon 1975:83; Bourne & Loveridge 1978; Kieser & Kieser 1979; Olson 1972, 1973: 13-22, 1975; Walker 1977).

In contrast to Ascension Island, situated about 1100 km to the northwest, the sea-bird populations of St. Helena are insignificant and the number of known breeding species considerably less (6 against 11). According to Stonehouse (1962: 119) this difference would be due to a marked difference in productivity of the waters surrounding the 2 islands. However, although the productivity around Ascension is indeed higher (cf. Gorshow 1978: map 246a,b), this can hardly account for the conspicuous disparity in the bird populations of the 2 islands. Firstly, St. Helena waters abound in fish (there is a significant tunny fishery) and secondly it is beyond doubt that the situation in recent historical times has been quite different, the bird species composition having been more varied and the populations having been larger. The overall decrease of bird populations of St. Helena most likely resulted from predation by man, (feral) cats and rats, from disturbance and destruction of habitat by goats and hogs, and (most of all) by active deforestation, giving rise to severe erosion and a denuded, barren landscape, possible former breeding grounds of petrels having been carried away.

The species presently breeding on the island are: Brown Noddy *Anous stolidus,* Black Noddy *A. minutus,* Fairy Tern *Gygis alba,* Sooty Tern *Sterna fuscata,* Red-billed Tropicbird *Phaeton aethereus* and Madeira Storm Petrel *Oceanodroma castro.* Frigatebirds *Fregata* spp. now absent, were still reported by Lesson (1826: 486) (who also saw boobies, tropicbirds and Cape Pigeons *Procellaria aequinoctialis*), but they are largely pirates, in particular towards boobies and tropicbirds, especially in calm weather such as prevails around St. Helena. Therefore, the recent disappearance of frigatebirds may have been brought about not simply by predation and habitat destruction, but also by the decline of other sea-bird populations. Factual data on this decline are not available, but at the time that frigatebirds had already vanished, or nearly so, Melliss (1871: 105-106, 1875: 97-98), reported that Red-billed Tropicbirds were still much persecuted for the sake of their tail feathers, while the eggs of the Sooty Tern (considered a delicacy) were still collected with "much risk of life".

Olson (1975), who continued the work of Ashmole (1963), concluded that the fossil bird-bone deposits which have been found in several localities on St. Helena, roughly date from 3 periods, namely from "well back" in the Pleistocene, from young Pleistocene, and Recent, perhaps a few hundred years old but not older than 1500 years. The species composition in the deposits of the 3 periods shows considerable differences, which are interpreted to reflect significant changes in meteorological and hydrographical conditions and as a result also in productivity and composition of the marine pelagic fauna (i.e. in quality and quantity of available food items for sea-birds).

The youngest deposits show that not long ago, and possibly even in recent historical times, several species of sea-birds bred on the island which have now vanished: some small petrels (notably *Puffinus l'herminieri* and *Pelagodroma marina*), frigatebirds (*Fregata minor* and *F. ariel trinitatis*) and boobies (*Sula sula* and *S. dactylatra*). Thus, while the former presence of frigatebirds has been confirmed in historical times by actual observations (Lesson 1826), it seems quite possible that boobies and a few petrel species also may still have been present on St. Helena when it was discovered in 1502. In view of their habits, the absence of early records of small petrels, especially, would not seem surprising, and in fact their colonies and breeding grounds may have been destroyed before their presence could be established. Recently, however, Bourne & Loveridge (1978), thought it just possible that remnant shearwater populations might still breed undetected on inaccessible cliffs and off-shore islets.

Apart from the Madeira Storm Petrel, at least one other petrel frequents St. Helena waters, namely the Cape Pigeon or Cape Hen (Haydock 1954: 73). The St. Helena fishermen apparently know this species quite well and I was informed that it is fairly common in the tunny season. It does not breed on the island, being a bird of the cold southern ocean. Records of other birds of southern origin are rare — *Diomedea exulans, Macronectes giganteus, Thalassoica antarctica* (Basilewsky 1970: 90-91) and *Chionis alba* (Loveridge 1969). Hence it is of interest that I observed an (immature?) Great Skua *Catharacta skua,* presumably of southern origin, on the northwest coast of the island, between Rupert's Bay and Banks' Point. It rose from a cliff and was soon mobbed by c.10 Fairy Terns, the light patches on its wings being quite conspicuous.

On 7 June, at James Bay, I observed one Brown Booby *Sula leucogaster* and one white gannet with dark on the tail and wings (unfortunately the head and wing pattern could not be seen against the sun) and which therefore was either a Cape Gannet *Sula capensis* or a Masked Booby *Sula dactylatra,* neither of which has been reported before from St. Helena (other than in fossil deposits — *Sula dactylatra).* However, on 18 June, I again observed a black and white gannet at the same spot (possibly the same bird) which was positively identifiable as a Masked Booby. I also sighted a gannet with a white tail, which, though I could not clearly observe the colour of its feet, must have been a Red-footed Booby. These 3 birds, rather coincidentally belonging to 3 different species of booby, presumably have to be regarded as stragglers from Ascension, the nearest locality where these species breed. Ashmole (1963: 390) suggested that a few Red-footed and Brown Boobies may occasionally breed on St. Helena, but so far substantial evidence for this is wanting.

Apart from the vagrants of southern origin listed above and the 3 species of booby, a few other stragglers, both from the African and the American continent, have been recorded from St. Helena — *Stercorarius pomarinus, Porphyrula alleni, P. martinica, Crocethia alba, Bubulcus ibis, Nycticorax nycticorax, Ardea cinerea, Ciconia ciconia* and unidentified swifts, swallows and diurnal birds of prey (Basilewsky 1970: 106-107, 109, 113-114, 122; Olson 1972; Bourne & Dixon 1973: 83).

Most of the resident land-birds of St. Helena have been introduced and their populations do not seem to have changed since Basilewsky (1970) studied them. Five species dominate and are to be met almost everywhere, provided that vegetation is present — a canary *Serinus flaviventris* from southern Africa, a mynah *Acridotheres tristis* from southeast Asia, a ground dove *Geopelia striata* from Malaysia, a waxbill *Estrilda astrild* from southern Africa and a fody *Foudia madagascariensis* from Madagascar. Another passerine, the Java Sparrow *Padda oryzivora,* is considerably less common and I only observed it 2-3 times in Jamestown and once in Rupert's Valley. The other introduced residents are the Chukar Partridge *Alectoris chukar,* which is nowadays rather uncommon (cf. Basilewsky 1970: 108) and the Ring-necked Pheasant *Phasianus colchicus torquatus.* On 10 June I flushed a covey of 10-12 Chukar Partridges from the dense vegetation in Fisher's Valley, near Cook's Bridge. The Ring-necked Pheasant was seen twice — a pair on 8 June between Longwood and the Horse Point Plain, and a single female on 16 June near High Peak. In addition, I heard the species when I visited Flagstaff Hill on 10 June.

It is noteworthy that a multiplicity of other birds has been introduced unsuccessfully (cf. Melliss 1870; Basilewsky 1970: 123-124). Some of these, e.g. the Guinea Fowl *Numida meleagris* actually acclimatized well, but simply disappeared because of excessive hunting pressure. Melliss (1870: 368-369), with the object of introducing a predator to control the damage done by termites *Heterotermes perfidus* (Silvestri 1936), a species probably imported into St. Helena in the early 19th century (Harris 1970: 181-182), introduced several common English passerines, of which, remarkably, the ecologically widely tolerant House Sparrow *Passer domesticus,* of which 26 individuals were released, did not manage to establish itself permanently.

In addition to the 8 introduced species which did permanently establish themselves, 2 other land-birds occur on St. Helena, viz., an endemic plover, *Charadrius sanctaehelenae,* locally known as Wire-bird, and the African race of the Common Moorhen *Gallinula chloropus meridionalis,* which seems to have introduced and established itself in recent times, presumably during the last one or two centuries (cf. Olson 1973: 20-21, 1975: 25). It is now a rather common breeding bird in localities with suitable habitat throughout the island. On 10 June, I observed 3 individuals in Fisher's Valley in the marshy terrain around Cook's Bridge. Basilewsky (1970: 110) suggested that, similarly, a small colony of Allen's Gallinule *Porphyrula alleni* had settled in James Valley, near the Briars, but there has been no confirmation (Olson, 1973: 21). St. Helena records of this species therefore almost certainly relate to stragglers from the African continent.

The Wire-bird is the only relic of the indigenous recent land-bird fauna. Nowadays it favours open terrain at medium altitudes (c. 300-450 m), where it can be met with almost everywhere. I saw it on the Prosperous Bay Plain, in Fisher's Valley around some pools at Cook's Bridge, on the Horse Point Plain, on the Longwood golf course and at the Dungeon, and most commonly on Deadwood Plain, between Longwood and Flagstaff Hill, where generally a dozen or more individuals were observed foraging singly, in pairs or in flocks of 3-5. Altogether I observed 80-100 individuals, so that the present population is probably at least a few hundred individuals, nearing the estimation of just under a thousand by Loveridge (cf. Pitman 1965: 122). The historical deforestation of the island has certainly considerably enlarged the original habitat of the Wire-bird, a factor which undoubtedly has favoured its survival. Layard (1867: 251), on the basis of an examination of stomach contents, reported that the species mainly feeds upon "small shells of the [indigenous snail] genus *Succinea*" and Coleoptera (cf. also Melliss 1871: 104, Harting 1873: 268, Basilewsky 1970: 113), but my field observations could only confirm that the bird's diet includes snails. According to Pitman (1965: 122-123) the breeding season of the Wire-bird is mainly confined to the dry season and may last from at least October to January, and Basilewsky (1970: 113) states that egg-laying may take place from October to July (i.e. during most of the year), though particularly from October to February. During my visit I did not find any nests, but on 16 June, on the Deadwood Plain, I recorded copulation, lasting for at least a full minute.

Other indigenous land-birds once living in, and dependent on, the peculiar primary forest (mainly consisting of highly characteristic endemics) that covered large parts of the island, seem to have vanished unrecorded with the deforestation, except that Forster (see Basilewsky 1970: 115) in 1775 observed "a small kind of blue dove, which is said to have been originally found in the country" on Diana's Peak, where remnants of the primary forest are to be found up to the present day. However, the youngest fossil deposits found on St. Helena show that the recent land-bird fauna at least included an endemic species of hoopoe *Upupa antaios* and a cuckoo *Nannococcyx psix* (Olson 1975: 31-35). Although direct evidence is wanting, it must further be considered likely that the recent fauna once included an endemic passerine component as is the case in the even more remote and less hospitable Tristan da Cunha archipelago (Olson 1975: 35). If, and to what extent these birds were still present on St. Helena when the first colonists settled, probably will always remain unknown.

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(For further references the reader is referred to Basilewsky 1970 and to Olson 1975).

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First twentieth-century specimen of the Violet-throated Metaltail *Metallura baroni*

by F.I. Ortiz-Crespo

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Several Andean hummingbird genera have numerous species each, notably *Coeligena* (12, cf. Meyer de Schauensee 1966), *Eriocnemis* (10), *Heliodoxa* (8, including forms with ranges adjacent to the Andes), *Metallura* (8), *Heliangelus* (6) and *Chalcostigma* (5). Congeners are largely allopatric, sometimes being separated narrowly by altitude or, on the other hand, replacing one another over large geographical areas. In some cases ranges are poorly understood as a result of the paucity of observations as well as of museum specimens, and, indeed, new species are still being described (Graves 1980). It is not surprising therefore that ecological relationships and speciation processes remain to be elucidated in these hummingbirds, while man-made habitat changes in the Andes proceed so rapidly that those species having the smallest distributions are likely candidates for extinction. Thus, a recent collecting record of an adult male Violet-tailed Metaltail *Metallura baroni*, a species known only from a male and female secured by O. T. Baron near Cuenca in southern Ecuador (Salvin 1893), is of special interest.

I visited the Mihuir Valley, a narrow canyon in the western slopes of the Cajas Mountains about 25 km west of Cuenca, on 31 December 1981. At the town of

Mihuir a metaltail was seen flying over a hedge, but because I had collected the common Tyrian Metaltail *Metallura tyrianthina* about 10 km to the east, on the eastern side of the Cajas, I did not follow the bird. However, as I walked from the town, which is at c. 3400 m, to a *Polylepis* forest 100-200 m higher in the valley, I saw a metaltail flying across a boggy meadow inside the forest. The bird perched on a low shrub at the meadow's edge, allowing detailed observation; it looked darker than normal for *tyrianthina* and so I decided to collect it. I noticed at once that it had the violet gorget and the greenish golden tinge to the tail that characterize *baroni* males (Meyer de Schauensee 1970; for an illustration, see Graves 1980). Later that day, a third individual, also dark in colour but lacking a gorget, was seen feeding from flowers of the parasitic loranth *Tristerix longebracteatus* midway between the forest and the town. The bird I collected was later preserved as a skin and deposited at the Museo Ecuatoriano de Ciencias Naturales, Quito.

The Río Mihuir originates in the Cajas paramo at c. 3900 m and flows through a steep-sided canyon with a forested, relatively flat bottom down to the site of the town, where it then drops into a gorge and the forest gives way to "gallery" woodland that merges with cloud forest not farther than c. 10 km from the town. The local peasants distinguish between 3 kinds of *Polylepis* trees: the 'quinoa blanca' round the town and along the floor of the canyon; 'quinoa colorada' downriver; and, as I later confirmed, 'quinoa negra' in the paramo proper. Unfortunately, no specific names can be attached to the 3 species (L.B. Holm-Nielsen). The 'quinoa blanca' from the area in which the *baroni* was obtained covered a 50-100 m swath alongside a 2 km stretch of the river, and grew together with shrubs and small trees of *Podocarpus, Gaiadendron, Weinmannia, Escallonia* and *Durantha.* Important nectar sources for hummingbirds included *Durantha, Macleania* and other shrubby ericads, and parasitic *Tristerix,* mostly on *Durantha.* Great boulders draped with bromelaiads, ericads, orchids, ferns and mosses are interspersed among the trees. I recorded a surprisingly diverse hummingbird fauna there on my visit on 31 December: *Pterophanes cyanopterus, Lesbia victoriae, Aglaeactis cupripennis* and *Oreotrochilus stella* in addition to *Metallura,* though *Aglaeactis* and *Oreotrochilus* seemed to visit the area only occasionally and fed mostly at clumps of *Chuquiraga insignis* in the highest reaches of the valley.

In a recent account on little-known birds of Ecuador, Ridgely (1980) records *Metallura baroni* based on a bird sighted "in low shrubby growth dominated by alders along a river in a generally arid region 2 km southwest of Oña (1900 m) in extreme Loja province, Mar. 2. 1980". This is nearly 1700 m lower and some 80 km south of the Mihuir Valley, and implies not only that the range of *baroni* extends into the western slopes of the western Andes in Azuay and northern Loja provinces but also that it has a considerable altitudinal spread. South of the Cajas massif the western Andes dip to barely 3100 m near Oña, and thus do not afford a habitat comparable to the high-altitude woods in the Mihuir Valley. Ridgely's record would suggest that the *baroni* population is remarkably adaptable to differing environmental conditions.

The extent of geographic overlap between species claimed by Graves (1980) has yet to be established in critical areas, let alone the ecological requirements of these sympatric species. At least in inter-Andean Azuay province, *tyrianthina* seems to be the only species of the genus represented there, as witnessed by specimens I have secured both on the eastern side of the Cajas (in the western Andes) and on the western slope of the cordillera above Nabón (in the eastern Andes). This does not, of course, rule out the possibility of sympatry between *tyrianthina* and *baroni* on the western side of the western Andes. If, indeed, interspecific competition does occur between them, the future of *baroni* as a viable species might be in jeopardy; and in addition continuing interference with the plant communities by man could emerge as the main factor for the blurring of ecotonal barriers to interspecific competition.

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Observations on nestlings of the Long-tailed Hermit *Phaethornis superciliosus*

by Peter J. Hudson

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The Long-tailed Hermit *Phaethornis superciliosus* is a common hummingbird in the lowland forests of Panama (Wetmore 1968) and is found throughout the humid lowlands of central and south America from Mexico to eastern Bolivia and Brazil. Some aspects of the breeding biology of this species have been described by Skutch (1964), but no detailed quantitative information exists on the growth and parental care of the nestlings.

On 15 February 1979 I found a nest of the Long-tailed Hermit containing 2 eggs. The nest was attached to the end of a palm frond (*Calyptrogyne sp.)* growing in the flood plain of the Rio Aila in the San Blas Province of Panama (8° 48'N, 77° 40'W). On 17 February the nest contained one chick and one egg and on 18 February (Day 1), when observations began, there were 2 chicks, one between 1 and 3 days old and a second less than 1 day old. With the exception of 18 March, diurnal observations were conducted continually from 9.00 a.m. on 18 February to 6.55 p.m. on 12 March, when the second chick fledged.

On 19 February while the female was absent from the nest I cut the palm frond carrying the nest and inserted a 50g Pesola balance between the frond and the nest. The weight of the nest and the chicks to the nearest 0.25g was recorded hourly through binoculars from c. 7 m. After both chicks had fledged the weight of the nest was noted and subtracted from all values. The periods of brooding and the number of visits by the adult were also recorded.

The first chick fledged on 10 March (Day 21) aged 22-24 days and weighing 6.25g. The second fledged on 12 March (Day 23) aged 23 days and weighing 6.75g. Skutch (1964) recorded the age at fledging of 2 chicks at one nest as 22 and 23 days and Davis (*in* Skutch 1964) described a nestling which fledged between 23 and 27 days of age.

Only one adult Long-tailed Hermit was observed at the nest; since sexes are similar and only females of the family Trochilidae feed the young (Wetmore 1968) I took this bird to be a female. The female's weight was recorded 3 times on 20 February during periods of brooding, these were 5.25g at 6.15 a.m., 5.00g at 8.51 a.m. and 6.00g at 11.33 a.m. The weight growth curves of the summed weight for the 2 nestlings is shown in Figure 1. It should be noted that these figures are the mean weight of the nest and young minus the weight of the nest recorded on 12 March and as such does not account for any variations in the weight of the nest during the period of observation.

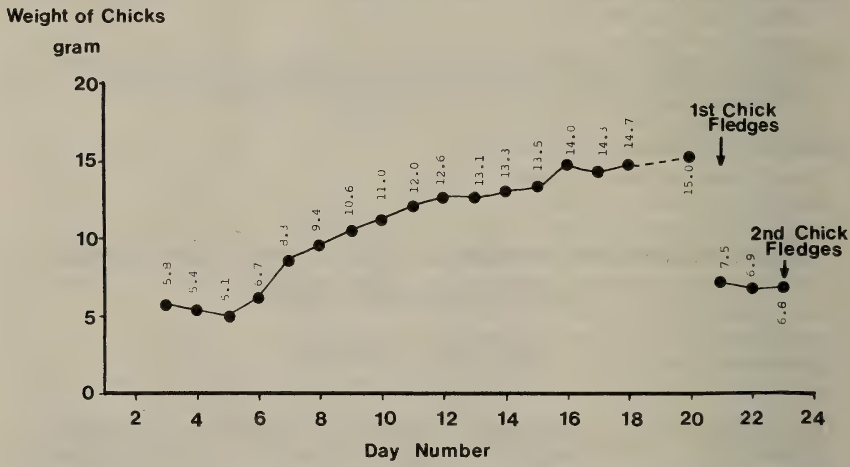

Figure 1. Weight (average 15 min readings) of 2 Long-tailed Hermit *Phaethornis superciliosus* chicks combined in relation to day number (approximate age). No readings were taken on day 19.

The nestlings were brooded on Day 1 for 22% of the daylight hours observed, in 4 periods averaging 29.75 mins; on Day 2 for 15% of the day in 7 periods averaging 15.6 mins; and on Day 3 for 4% of the day in 2 periods averaging 14.5 mins. The adult did not brood the nestlings during the day after Day 3.

The number of feeding visits per day to the chicks increased from 5 to 17 per day and decreased after the first chick fledged on Day 21 (Table 1).

Table 1.
Number of feeding visits to nest by parent *Phaethornis superciliosus* in relation to approximate age of its 2 chicks

Day No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Feeds	5	9	9	9	8	9	14	13	13	12	15	15	14	15	11	14	15	17	—	14	13	11	2

The number of feeding visits to the chicks tended to be greater in the morning and decreased after noon ($p<0.05$) (Table 2).

Table 2.
Number of feeding visits to nest by parent *Phaethornis superciliosus* in relation to time of day (n=22 days)

Time	6a.m.	7	8	9	10	11	12 noon	1 p.m.	2	3	4	5
Feeds	17	38	24	23	23	27	20	18	19	14	19	11

Before feeding the chicks the adult hummingbird would often call and then hover or perch on the nest. On one occasion the hummingbird was seen removing arthropods from a spider's web close to the nest site and on another occasion feeding at an inflorescence of *Brownea rosa-de-monte* which was being monitored for another study (Hudson & Sugden 1984).

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The Status of *Geospiza magnirostris* on Isla Floreana, Galapagos

by David W. Steadman

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Gould (1837) described 2 large-billed forms of Darwin's finches as *Geospiza magnirostris* and *G. strenua*, based upon the specimens collected in 1835 by various members of the *Beagle* Expedition. Lack (1946) regarded *G. strenua* as a race of *G. magnirostris*, a treatment with which I concur. Gould (1837) designated no particular island as the type locality of either new species, although later he stated specifically (Gould 1841) that *G. magnirostris* was from Floreana (Charles) and San Cristobal (Chatham), and not from Santiago (James), where *G. strenua* occurred. Nevertheless, the status of *Geospiza magnirostris* on Floreana has been controversial. The basic questions have been: 1) Did *G. magnirostris* ever occur on this island? 2) If so, is it now extinct? 3) If *G. magnirostris* occurred (or still occurs today) on Floreana, is it represented by the larger (*G. m. magnirostris*) or the smaller (*G. m. strenua*) of its 2 races? Recent historic and palaeontological research has answered questions 1 and 3; *G. m. magnirostris* occurred on Floreana and San Cristobal in 1835 and probably was the most common land bird in the arid lowlands of Floreana in prehistoric times (Sulloway 1982a, b; Steadman in press). The prehistoric status of *G. m. magnirostris* on San Cristobal awaits the discovery of fossils there. In this paper I will address the question of whether or not *G. magnirostris* is extinct on Floreana.

Based upon the *Beagle* specimens, most ornithologists of the late 1800's and early 1900's regarded *G. magnirostris* to have occurred upon Floreana and perhaps San Cristobal as well. However, Swarth (1931: 141–149) believed that the 7 large-billed *Beagle* specimens of *G. magnirostris* were taken neither on Floreana nor San Cristobal, but on Santiago. By eliminating Floreana and San Cristobal, from the range of *G. magnirostris*, and regarding the large *Beagle* specimens as belonging to the same population as smaller-billed specimens that actually had been collected on Santiago, Swarth was unable to recognise any subspecies within *G. magnirostris*. Through detailed historical research, Sulloway (1982a, b) has shown conclusively that the *Beagle* specimens of large-billed *G. magnirostris* were collected on both Floreana and San Cristobal.

Since the *Beagle* Expedition, only 2 specimens from Floreana have been assigned to *G. magnirostris*. The first of these is USNM 115905, a male collected by the *Albatross* Expedition on 8 April 1888. Ridgway (1890: 105, 119, 122) reported this specimen as the first record of *G. strenua* for Floreana. Ridgway's measurements (1897: 515; 1901: 497) showed USNM 115905 to be similar in size to examples of *G. strenua* from other islands. Rothschild & Hartert (1899: 155; 1902: 388) and Rothschild (1907: 11) believed that USNM 115905 must represent *G. magnirostris* and not *G. strenua*, simply because it came from Floreana; they attributed its small size to immaturity. Swarth (1931: 162, 163) presented the first thorough description of this specimen, correctly stating that it was not in juvenal plumage, but was more than a year old and had therefore reached full adult size. Swarth noted that USNM 115905 was the size of *G. magnirostris* from Rabida or Isabela, yet was also very similar to very large examples of *G. fortis* from Floreana. He concluded (p. 163), "It seems to me to form one of the many closely graded steps that unite *fortis* and *magnirostris*, an aberrant *fortis* of unusually large size". Lack (1945: 9, 103) could not distinguish USNM 115905 from *G. m. strenua*, and thus considered it to be a straggler to Floreana from another island. Sulloway (1982b) mentioned this specimen without specific comments.

TABLE 1.

Measurements (mm) of *Geospiza magnirostris* and *G. fortis*, giving mean and range. Measurements are the author's unless stated otherwise.

	USNM 115905 ♂	UCMVZ 140985 ♀	*Beagle* specimens *G. m. magnirostris*[1]	*G. m. strenua* males[2]	*G. m. strenua* females[3]	*G. fortis* males[4]
Wing	77	77	88 86–92	79 74–86	78 74–82	73 68–78
Culmen from nostril	14.7	15.8	18.1 17.4–18.9	15.4 14.6–17.2	15.5 13.3–16.6	——
Depth of bill	17.3	18.0	21.9 21.3–22.4	17.6 16.1–20.8	18.6 17.3–20.7	12.8 11.0–16.0
Maximum width of gonys	13.0	15.2	16.9 16.4–17.4	14.7 12.5–16.4	15.0 13.2–16.6	10.0 8.2–12.0
Maximum width of culmen	8.4	8.8	10.2 10.0–10.5	8.6 7.6–10.0	8.7 8.1–9.2	——

[1] from Floreana and San Cristobal, BMNH; N = 7; includes males and females.
[2] from Santa Cruz, Isabela, Pinta, Marchena, Genovesa, Culpepper, Rabida and Santiago, USNM, BMNH; N = 54.
[3] from Isabela, Pinta, Marchena, Genovesa, Pinzon and Santiago, USNM, BMNH; N = 16.
[4] from Floreana, CAS; compiled from Swarth (1931: 168); N = 22.

My measurements of USNM 115905 (Table 1) are near the upper limits of *G. fortis* as well as the lower limits of *G. m. strenua*. I regard this specimen probably to be a very large example of resident *G. fortis*. This species attains its largest size on Floreana. The bill in USNM 115905 is mainly dark, thus arguing that it represents an adult from a local breeding population. That USNM 115905 may be a hybrid between *G. fortis* and *G. m. magnirostris* is unlikely because of its small size (much smaller than *G. m. magnirostris*) and because *G. m. magnirostris* was almost certainly extinct on Floreana by 1888. USNM 115905 might possibly, however, represent a hybrid between a resident *G. fortis* and a straggler *G. m. strenua*. Regardless, this specimen certainly does not represent *G. m. magnirostris*.

Bowman (1961: 20, 25, 271) reported another specimen from Floreana as *G. magnirostris*. He stated (p. 271), "... in 1957 I collected on Charles Island one adult female individual of *G. magnirostris* which overlaps in bill dimensions with some of Darwin's specimens, thus clearly establishing the fact that Darwin could have, and, indeed, surely must have, collected his birds [the very large-billed specimens of *G. magnirostris*] on Charles Island. It is strange that this species should have been overlooked by collectors for over a century, but it must have been there, since I encountered this one individual in a matter of a few hours after walking inland from Black Beach on September 20. Undoubtedly more specimens could have been obtained (for other birds of the species were observed) had time permitted."

Harris (1973) has cited Bowman's specimen as being possible evidence that *G. m. magnirostris* may still live on Floreana. As noted by Lack (1969: 255, 261), Bowman presented no measurements or other characters for his specimen, but merely said that it "... overlaps in bill dimensions with some of Darwin's specimens". This statement is incorrect, however, if "Darwin's specimens" is taken to mean "the *Beagle* specimens of large-billed *G. magnirostris*", as Bowman was implying.

Bowman's specimen (UCMVZ 140985, taken on 20 September 1957, 1½ miles east of Black Beach, elevation 600 feet) does not overlap with the *Beagle* specimens of *G. m. magnirostris* in any measurement (Table 1). Instead, the measurements of UCMVZ 140985 show it to be an example of *G. m. strenua*. I have compared UCMVZ 140985 directly with USNM 115905, finding the difference in size enough to corroborate the hypothesis that USNM 115905 probably represents *G. fortis*. UCMVZ 140985 probably was a straggler from Santa Cruz, for it is well within the range of *G. m. strenua* from that island in all dimensions of the bill, as well as in wing length. Because of its small size, UCMVZ 140985 does not provide evidence that "Darwin's specimens" [which include specimens collected by Darwin, Fitzroy, Covington and Fuller] of *G. m. magnirostris* came from Floreana, nor can this specimen be regarded as evidence that a large-billed form of *G. magnirostris* still survives there.

The *Beagle* specimens remain as the only non-palaeontological evidence of *Geospiza magnirostris magnirostris* from Floreana. This largest of all Darwin' finches has not been collected for 150 years and therefore should be regarded as extinct.

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Notes on Philippine birds, 3
First sight records of the Javan Pond-Heron *Ardeola speciosa* from the Philippines

by Robert S. Kennedy, Sjoerd Mayer & Timothy H. Fisher

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The Javan Pond-Heron *Ardeola speciosa* is reported to be a sedentary species with no extensive off-season movements or long-range post-fledging dispersal known (Hancock & Elliott 1978). Payne (1979) restricts the range of the species to Thailand, Cambodia, Cochinchina, and Burma for *A. s. continentalis,* and Malacca, Singapore, Sumatra, Java, Borneo, Kangean, Celebes, Salajar, Butung, Bali, Lombok, Sumbawa, and Sumba for *A. s. speciosa.* Smythies (1981) noted that it is a resident in Kalimantan, but is only known from 3 specimens in Sarawak, and one in North Borneo. The Chinese Pond-Heron *A. bacchus* is the only pond-heron listed by duPont (1971) in the Philippines where it is considered a straggler from eastern Asia.

Because of the few records for northern Borneo, the absence of prior records for the Philippines, and the sedentary nature of the species, it came as a great surprise in January 1982 that the Javan Pond-Heron was sighted at one locality in western Mindanao, at 3 localities in southern Mindanao, and at one locality in eastern Mindanao.

SM, a brief visitor to the Philippines, found the species quite common and did not realize that its presence in such numbers was anything unrecorded. Between 13 and 31 January 1982 he saw 5 birds in rice fields near Molave, Zamboanga del Sur, 100 in the reed marshes on the west shore of Lake Buluan, Sultan Kudarat, 5 more in rice fields 5-10 km south from there, and another 5 in rice fields between Cotabato City and Kidapawan, North Cotabato. He estimated that one in 10 was recognizable in adult breeding plumage. It is well known (see King *et al.* 1975, Smythies 1981) that the 2 pond-herons are indistinguishable in immature or winter plumage, usually even in the hand.

THF, who has resided in the Philippines for many years, and R. E. Krupa saw 10 adults and about 20 imm/winter plumaged birds in rice fields and marshes northwest of Carmen, Davao del Norte on 16 January 1982, noting the diagnostic buffy heads and cinnamon breasts. On 20 February 1983, 2 imm/winter plumaged birds were seen again in this area by RSK and others, and a single imm/winter bird by B. F. King and others on 25 April 1983.

These widely distributed records and the probable large numbers seen suggest the colonization of Mindanao may have taken place several years ago. In southern Mindanao pond-herons were first seen near Lake Buluan around 1975 (per S. Gast). Western and southern Mindanao have been disturbed by armed conflicts during the past 2 decades and it has been too dangerous for naturalists to make observations there. Since there have not been previous sightings in eastern Mindanao where naturalists have been more active, we believe the expansion into the Davao area is more recent. No breeding activity for the species has been discovered so far and no specimens have been collected.

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Range extensions, one new record, and notes on winter breeding of birds in Bolivia

by H. E. M. Dott

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The distribution of birds within Bolivia is still poorly known. The size of Bolivia (over one million km^2) and its extremes of altitude, terrain and habitat, result in both a large number of bird species (c. 1200) and great difficulty in exploration.

Bond & Meyer de Schauensee (1942, 1943) catalogued all the species then known from Bolivia from all sources, including the large museum collections made by d'Orbigny, Carriker, the Steinbachs and others. Gyldenstolpe (1945) described an extensive collection from northern Bolivia, and Niethammer (1953, 1956) reported collections and studies made in northern and central Bolivia. Since these pioneering works, few studies have been made of Bolivian birds except those of Olrog (1963), Vuilleumier (1969), and a series of recent contributions which have provided much new information; Pearson (1975), O'Neill (1976), Remsen & Ridgely (1980), Parker, Remsen & Heindel (1980), Cardiff & Remsen (1981), Remsen (1981), Schulenberg & Remsen (1982), Remsen, Parker & Ridgely (1982), Remsen & Traylor (1983).

Recent works on the whole South American continent (Meyer de Schauensee 1966, 1971, revised 1982, Blake 1977) give statements on bird distribution for individual countries including Bolivia, based on published and unpublished information, but through necessity the statements are concise or condensed. Some records for southern parts of Bolivia are given by Johnson (1965, 1967, 1972) and Short (1975).

I was resident in Bolivia 1969–71 and 1974–75, and while engaged in other work was able to record sight observations of some 200 species of birds. This paper provides records which clarify or extend the Bolivian distribution as presently known, including one species (*Sarkidiornis melanotos*) not previously recorded in Bolivia. North American migrants in Bolivia will be treated in a separate paper (Dott in prep.).

Most birds breed in Bolivia during the austral summer, roughly from October to February, which is also the wet season, both in lowlands and highlands and in wet and dry parts (Bond & Meyer de Schauensee 1942–43, Gyldenstolpe 1945, Niethammer 1953, Dott unpubl.). Vuilleumier (1969) and Dorst (1963) give information on the nesting of some high-Andean species in Bolivia and Peru respectively, in the austral summer period. Observations from the Austral winter are rare, so that records of breeding at that time are of interest.

Fig. 1 shows the major geographical features of Bolivia and the localities mentioned in this paper.

It is a pity that the relationship between geographical distribution of birds and habitat in Bolivia has not been well recorded. Although the human population is not dense, the vegetation is being rapidly altered in some large areas. Notably, the rich altitudinally-zoned forest of the Andean slopes in Cochabamba and La Paz Departments (the "yungas" region) is being penetrated and destroyed by improved roads, shifting and permanent agriculture, and the cutting for timber of trees which are not being replaced. Similarly, in the tropical forest spreading from the Andean foothills through most of northern Santa Cruz, clearance and human settlement are increasing, and forest timber trees are being extracted even in areas where the law forbids this but is not enforced. The effect on the distribution of birds and all fauna must have begun already.

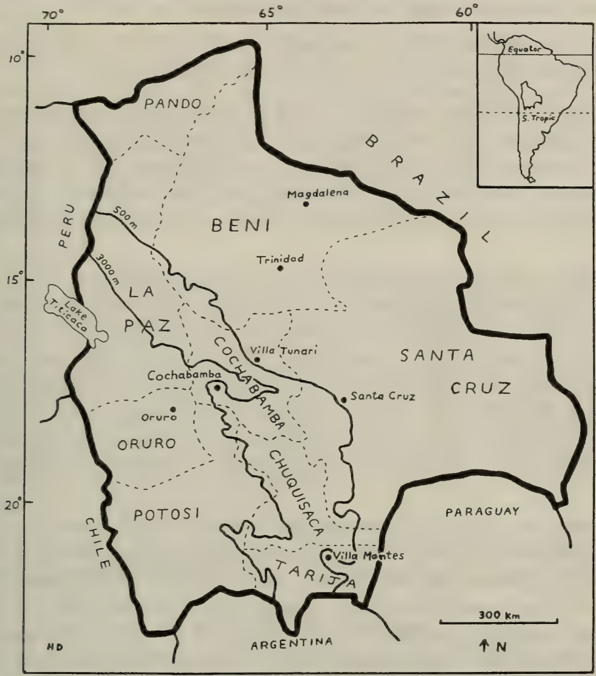
70°
65°
60°
10°
15°
20°
Equator
S. Tropic
PANDO
BRAZIL
Magdalena
BENI
PERU
500m
3000m
Trinidad
LA PAZ
Lake Titicaca
Villa Tunari
SANTA CRUZ
COCHABAMBA
Cochabamba
Santa Cruz
Oruro
ORURO
CHUQUISACA
POTOSI
CHILE
PARAGUAY
Villa Montes
TARIJA
300 km
HD
ARGENTINA
N

Figure 1. Map of Bolivia showing the Departments and major towns or villages mentioned in the text. The 3000 m and 500 m contour lines divide Bolivia into three major areas: (1) altiplano and Andean Cordilleras in the west, (2) middle zone of the Andean eastern slopes, and (3) eastern lowlands. Area (2) has a fairly sharp division formed by an east-projecting spur of the Andes running north of Cochabamba city towards Santa Cruz city; the area north of this spur is humid and that to the south semi-arid. Areas (1) and (3) grade from humid in the north to semi-arid in the south.

LIST OF SPECIES

Sequence and nomenclature follow Meyer de Schauensee (1982).

Greater rhea *Rhea americana*. This large and conspicuous though wary bird is stated to occur only in the "chaco" area of Bolivia (Bond & Meyer de Schauensee 1943, Blake 1977, Meyer de Schauensee 1982) although no indication is given of which Departments in that area (far southeast of Bolivia) records may be from, and Short (1975) gives no record for the "chaco" in Bolivia.

I observed Greater Rheas at 2 localities in northern Bolivia, in groups of up to 6; close to Trinidad on 5 Dec 1974, and at several places 30 km northwest of Magdalena, Beni Department, 9–16 Dec 1974. On both occasions the Rheas were seen from horse-back in wide open long-grass ranching areas with patches of forest, away from human settlements. They were shy and watchful and kept at a distance. Thus *Rhea americana* is still present in northern Bolivia, though not recorded since a 1938 record of Gyldenstolpe (1945) at one locality in western Beni Department, a record overlooked in all later works.

It is possible that the species occurs between the above Beni localities and the "chaco" area (some 600 km apart), in the extensive eastern parts of Santa Cruz which have little human population; residents in Bolivia, including Franz Steinbach (pers. comm.), report that Rheas occurred there in the past. Bolivians still report finding nests with eggs in Beni Department.

White-tufted grebe *Podiceps rolland.* A pair with 2 juveniles was at Laguna Alalay, at Cochabamba city, at 2550 m, on 29 July 1975.

Silvery grebe *Podiceps occipitalis.* A pair with one juvenile was at Laguna Alalay, Cochabamba city, on 20 Aug 1975. Although *P. rolland* and *P. occipitalis* were seen at Laguna Alalay in all months, no young were seen except the 3 above, during the austral winter. Both Niethammer and Carriker found species of water birds at Lake Titicaca breeding in both summer and winter (Niethammer 1953: 232).

Capped heron *Pilherodius pileatus.* I recorded 2 individuals not far from each other near Portachuelo, 70 km north of Santa Cruz city, on both 18 and 21 March 1975, which extends the known distribution to central Bolivia. Previous published records appear to be only of 3 specimens, from La Paz, Beni and eastern Santa Cruz Departments (Bond & Meyer de Schauensee 1943, Gyldenstolpe 1945). The Capped Heron is probably not a widespread or abundant species in Bolivia; I did not record it amongst many species of Ardeidae in Beni, Cochabamba Department, or southern areas, and Gyldenstolpe (1945) judged it "apparently rather uncommon".

Jabiru *Jabiru mycteria.* This unmistakable species is not recorded in Bolivia by Meyer de Schauensee (1982), although Gyldenstolpe (1945) found it in northern Beni. Blake (1977) shows its distribution, with no details, as including the easternmost fringe of Beni and Santa Cruz Departments. Jabirus may be more wide-ranging in Bolivia than indicated to date: I found them to be abundant around Magdalena in December 1974 (within Blake's indicated area) and saw several near Trinidad on 5 Dec 1974, further southwest than previously recorded, while one seen at Villa Montes, Tarija Department, 6 Nov 1974, was far to the south of all other Bolivian records.

Many of the Jabirus seen 9–16 December on the wet pampas near Magdalena were juveniles. The ranchers living there could distinguish Jabirus from *Nycteria americana* and *Euxenura maguari*, which were numerous there. They assured me that 2 young Jabirus flew about 2 weeks earlier from an enormous nest, which I saw, high in an isolated tree.

Plumbeous ibis *Harpiprion caerulescens.* Records of this species are scarce. Blake (1977) gives its range as "northern and eastern" Bolivia, apparently on the basis of 2 records quoted by Gyldenstolpe (1945), and Meyer de Schauensee (1982) mentions only "central Bolivia". I noted the species at only one place, 2 together 30 km northwest of Magdalena in wet grassland with patches of forest nearby, on both 14 and 15 Dec 1974, in company with larger groups of the more numerous ibis species *Theristicus caudatus* and *Phimosus infuscatus.*

Black-bellied tree-duck *Dendrocygna autumnalis.* 3 seen at Laguna Alalay, Cochabamba city, at 2550 m, 29 Dec 1974, may have been casual visitors, as none was seen on many other visits to the locality. The species is previously known only from northern and eastern Bolivia and is typical of the "tropical zone" of South America (Blake 1977, Meyer de Schauensee 1982).

Teal *Anas* sp. A duck, almost certainly a Speckled Teal *Anas flavirostris* with 4 half-grown ducklings still at a downey stage, was watched on 7 July 1975 on a large shallow lake formed by flood-water from the Rio Desaguadero on the altiplano c.40 km northwest of Oruro at 3750 m. Conditions there were severe. All small streams in the area were frozen across their surface in spite of direct sunshine, and night temperatures (newspaper reports) dropped to −14°C in Oruro and −30°C elsewhere on the altiplano; yet large lakes or flood-water, including that where the teal was seen, remained unfrozen, presumably due to the dissolved salts which made encrusted white deposits near the margins. The teal may have been an opportunist breeder using these winter conditions to breed; adult Lepidoptera were flying and so presumably other food was available. At the same place, large numbers of other ducks and wading birds were in flocks, typical of non-breeding season behaviour, and Andean Gulls *Larus serranus* there were all in winter plumage.

White-cheeked pintail *Anas bahamensis.* Although Bond & Meyer de Schauensee (1943) cite one Bolivian record for this species, in western Bolivia, both Blake (1977) and Meyer de Schauensee (1982) state that it occurs in eastern Bolivia, but with no indication of localities. I found it more or less regularly in almost every calendar month in the years 1969–71 and 1974–75, amongst other species of ducks and waterbirds, at Laguna Alalay beside Cochabamba city, in west-central Bolivia at c. 2550 m. Numbers reached a maximum of c. 60 in December and January, with lowest numbers (1–20) in the austral winter months. No evidence of breeding was noted.

Comb duck *Sarkidiornis melanotos.* This species was seen clearly on several occasions in Cochabamba Department, where it appears to be an irregular visitor, at least in the austral summer months.

I visited Laguna Alalay, at the edge of Cochabamba city (Fig. 1) at c. 2550 m, on 16 dates which included every calendar month except February during 1969–71 and 1974–5. Comb Ducks were present on 14 Sep 1969 (5), 12 Oct 1969 (5), 23 Nov 1969 (5), 20 Dec 1969 (3 pairs), and 16 Jan 1975 (1 ♀). At Lake Angostura, c. 25 km southeast of Cochabamba city, which I visited on several occasions in different months, I saw Comb Ducks once: 1 ♂, 2 ♀ on 13 Dec 1969. These appear to be the first records of *S. melanotos* in Bolivia.

Meyer de Schauensee (1982) describes the Comb Duck as a "forest duck of local distribution". The 2 lakes where I found Comb Ducks are not in a forested region; they are artificially enlarged lakes in a climatic zone which has c. 10 dry months per year and an open xerophytic scrub habitat. The nearest forested region is cloud-forest on the north side of an east-running offshoot of the Andes c. 50 km to the north.

Common gallinule *Gallinula chloropus.* Young with adults were at Laguna Alalay, Cochabamba city, 22 June 1975 and 29 July 1975. No other juveniles were seen although adults were present in winter and summer. At Lake Titicaca, Niethammer (1953) found clutches of both *G. chloropus* and American Coots *Fulica americana* in November and June, and in the high Andes in Chile, McFarlane (1975) found the Giant Coot *F. gigantea* to have an extended breeding season.

Collared plover *Charadrius collaris.* Collared Plovers were present at Laguna Alalay, at c. 2550 m beside Cochabamba city, in every calendar month of 1969–71, 1974–75; 20–35 were seen on each occasion spread around the muddy margins of the lake. Display behaviour and birds in presumed juvenile plumage were seen Jan–Apr, suggesting breeding had occurred.

Blake (1977) and Meyer de Schauensee (1982) describe this species as spread generally through the "lowlands east of the Andes" in South America, and for Bolivia, Bond & Meyer de Schauensee (1943) cite several lowland localities, the highest at 7500 ft (c. 2300 m) in Tarija Department.

SCARLET MACAW *Ara macao.* I noted a pair 30 km northwest of Magdalena on 12 Dec 1974, in an "island" of forest among the wet grasslands there, and another pair at San Francisco near Villa Tunari on 20 Feb 1975, in tropical forest in the Andean foothill zone. This species is recorded only from the Department of Santa Cruz (Meyer de Schauensee 1982), and so the present records extend the known occurrences to Beni and Cochabamba Departments. It does not seem to be common in any of these areas.

CRESTED HORNERO *Furnarius cristatus.* The only records in Bolivia are specimens and sightings from 1957 and 1977, only recently published (Remsen & Traylor 1983, Remsen & Ridgely 1980), all from the far south. On 6 Nov 1974, I watched 2 Crested Horneros in the town of Villa Montes in the same region. Apart from the crest, which was very distinct, their general plumage, mode of walking and postures appeared similar to those of the Rufous Hornero *F. rufus*, which is abundant in Bolivia. *F. cristatus* occurs in the "chaco" areas of Paraguay and Argentina (Vaurie 1980, Meyer de Schauensee 1982), and Remsen & Ridgely (1980) speculate that the species may have recently spread into Bolivia.

GREAT KISKADEE *Pitangus sulphuratus.* A pair was displaying vigorously at a nest, high in a eucalyptus tree, at the end of February 1971 near Cochabamba city.

CHALK-BROWED MOCKINGBIRD *Mimus saturninus.* Although now stated to occur only in northern Bolivia by Meyer de Schauensee (1982), there are previous records of this species from Tarija and southwest Santa Cruz Departments (Bond & Meyer de Schauensee 1942). I found *M. saturninus* still present in southern Bolivia, where I watched 3 together closely enough to record considerable details of plumage, at Entre Rios, 70 km southwest of Villa Montes, 4 Nov 1974. It may be scarce, however, as no others were seen and the Brown-backed Mockingbird *M. dorsalis* was commoner in the area.

BAY-WINGED COWBIRD *Molothrus badius.* One was seen visiting a nest in a eucalyptus tree near Cochabamba city on the late date of 9 April 1971.

RED-CRESTED CARDINAL *Paroaria coronata.* Stated to occur only in southeast Bolivia (Meyer de Schauensee 1982), Gyldenstolpe (1945) had in fact found adults and juveniles at a locality in western Beni in the north. I found *P. coronata* in Tarija Department at Villa Montes, November 1974, and also in 2 new localities in Beni in the far north. Near Trinidad on 5 Dec 1974, it was common at the edges of forest bordering grassy plains, and at Magdalena, 6-22 Dec 1974, it was numerous along forest edges bordering wet grasslands up to 10 km from the village, as well as common in and around the village itself. The congeneric Red-capped Cardinal *P. gularis* was present in bushy vegetation in the same area.

HOODED SISKIN *Spinus magellanicus.* This appears to be a winter breeder in Cochabamba. In Cochabamba city, I found a young Hooded Siskin prematurely out of its nest, which was probably located in the dense crown of one of the palm trees in the central city square, on 1 May 1971, and another at the same place on 18 May 1974. No fledglings were found at any other time. Much early morning singing by this species was noted in April 1974. Rainfall is irregular in Cochabamba between November and March (Osborne 1964), and in 1970–71 and 1973–74 fell briefly in January–March. It could be that watering of parks and irrigation of crops near the city cause an increased food supply for a longer part of the year, or alternatively, Hooded Siskins may breed later than most birds in Bolivia to coincide with the ripening of seeds at the end of the summer. This would closely resemble the late breeding found by Skutch (1950) for certain seed-eating birds, including *Spinus*, in Central America in the northern hemisphere.

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Some noteworthy records of birds from Bolivia

by Theodore A. Parker, III and Rose Ann Rowlett

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While conducting a natural history tour in central and northwest Bolivia in October 1983, we observed several unusual bird species including one species not previously recorded in the country.

COMB DUCK *Sarkidiornis melanotos.* On 3 October 1983 we observed one individual, probably a female because of its small size and lack of a "comb", on a small pond 8 km east of Montero, (17° 20'S, 63° 15'W) along the road to Okinawa, Dpto. Santa Cruz. The bird was in the company of 24 Brazilian Ducks *Amazonetta brasiliensis.* Dott (1984 — see back in this issue) records this duck as an irregular visitor. It is a widespread species and it has been found in the lowlands of adjacent Peru (where it is very rare), Brazil and Argentina (Blake 1977).

BLACK-AND-WHITE HAWK EAGLE *Spizastur melanoleucus.* On 21 October 1983 we watched 3 adults of this rare raptor at they circled over tall, lower montane cloudforest of Serranía Bellavista, about 48 km by road north of Caranavi (15° 46'S, 67° 36'W) Dpto. La Paz, at 1100 m. In addition to their immaculate white underparts and very dark upperparts, we noted their long wings and relatively short, narrow and indistinctly barred tails; in all 3 birds the leading edge of the wing was white and contrasted strikingly with the dark upper surface. Previous records for Bolivia are summarised by Remsen & Ridgely (1980). This is apparently the first record for Dpto. La Paz.

YELLOW-BREASTED CRAKE *Porzana flaviventer.* On 3 October 1983 we found one individual of this diminutive rail in a marsh 8 km east of Montero, Dpto. Santa Cruz. On several occasions from 13:00 to 14:30 the bird hesitantly emerged from tall, dense cover of a *Typha* reed bed, and briefly walked along the mud bordering a small pond, at times passing within a few centimetres of 2 Ash-throated Crakes *Porzana albicollis* also present in the reeds. All 16 observers present noted its very small size (in direct comparison with the conspicuously larger *P. albicollis*), uniformly buff-coloured underparts and superciliary, pale-streaked back, and black-and-white barred flanks. This is the first record of this species for Bolivia; it was previously known primarily from northern, eastern and southern South America, occurring as close to Bolivia as Tucumán, Argentina (Blake 1977).

PAINT-BILLED CRAKE *Neocrex erythrops.* The Bolivian records of this enigmatic species were recently summarized by Remsen & Traylor (1983), but little has been published on its habitat requirements or behaviour. On 3 October 1983 we heard 3 *Neocrex erythrops* singing (see later) at dusk from dense, shrubby thickets bordering the marsh 8 km east of Montero, Dpto. Santa Cruz. The birds were apparently on dry ground under shrubs averaging about 2m in height, within a few metres of water. They could not be enticed to leave the impenetrable cover through tape playbacks. Their songs are unlike those of any other rallid known to us and consisted of a long, gradually accelerating and descending series of up to 36 staccato notes delivered in a continuous sequence, followed by 3–4 short, churring notes that drop noticeably in pitch, the last of which is usually given as a protracted flat trill of about 3 seconds. Occasionally a shorter vocalization was given, consisting of an introductory staccato note followed by the churring trill described above, in rhythm and quality somewhat reminiscent of the song of the Straight-billed Woodcreeper *Xiphorhynchus picus*, which occurs in the same habitat. We first learned the songs of *N. erythrops* on 26 October 1981, when we discovered one of these rails on the ground in well-shaded, damp secondary woodland (of slender trees averaging 7–10 m in height) bordering a clearing on the outskirts of Puerto Maldonado, Dpto. Madre de Dios, southeastern Peru. The bird on that occasion responded to playbacks of its own song by cautiously walking back and forth in a semi-circle, while remaining about 2 m from us.

UPLAND SANDPIPER *Bartramia longicauda.* This migrant from North America was previously known in Bolivia only from Dptos. Beni and Pando (Gyldenstolpe 1945). On 25 October 1979, R. A. R. and Robert Ridgely saw one bird on a high plain (3700 m) near Lago Uru-Uru (18°S, 67°W) Dpto. Oruro. R. A. R. also observed several groups of 3–4 *Bartramia* near Santa Cruz de la Sierra (Santa Cruz city) Dpto. Santa Cruz, on 2 October 1982. We saw 4 in grassland about 8 km southwest of the same city, along the road to Villa Montes, on 2 October 1983; at least 8 were noted in pasture land 5–10 km north of the city on 3 October 1983 and several were also heard 8 km east of Montero on the same day. This species is apparently a regular autumn migrant through the Santa Cruz area.

BUFF-BREASTED SANDPIPER *Tryngites subruficollis.* Gyldenstolpe (1945) reported October records of this migrant from North America for Dptos. Beni and Pando, at that time the only records for Bolivia. On 3 October 1982 R. A. R. found 2 on a grass-covered sandbank along the Rio Grande, northeast of Santa Cruz de la Sierra. On 3 October 1983 4 were seen in very short grass growing on a recently dried out small pond 8 km east of Montero. They were in close proximity to other migrants: *Tringa solitaria* (8), *T. flavipes* (12), *Actitis macularia* (2) and *Calidris melanotos* (30+).

HUDSONIAN GODWIT *Limosa haemastica.* On 4 October 1983 we found 2 individuals of this unmistakable species at the now unused sewage ponds on the northeast outskirts of Santa Cruz de la Sierra. Both birds were in the uniformly grey basic plumage. They were resting amidst a group of 30+ Wattled Jacanas *Jacana jacana*, close to other North American migrants: *Tringa solitaria* (6), *T. flavipes* (20), *Actitis macularia* (3), *Calidris melanotos* (20) and *Phalaropus tricolor* (1). The only previous record of *L haemastica* for Bolivia is of one photographed at Lago Uru-Uru, Dpto. Oruro, on 12 September 1972 (Pearson 1975).

BLACK SKIMMER *Rhynchops nigra.* The few records of this species for Bolivia are from Dptos. Beni (Bond & Meyer de Schauensee 1942) and La Paz (Niethammer 1953). On 25 October 1979 R. A. R. and Robert Ridgely found 2 at the north end of Lago Uru-uru (3700 m), Dpto. Oruro. We observed one along the sandy shore of the Rio Piray, north of Santa Cruz de la Sierra, on 3 October 1983. These records represent a substantial southerly range extension.

SAND-COLOURED NIGHTHAWK *Chordeiles rupestris.* On 12 October 1983 we observed at least 10 individuals along the Rio Chapare at Villa Tunari, Dpto. Cochabamba. It was previously known in Bolivia only as far south as Dptos. Beni and La Paz (Niethammer 1953).

WHITE-THROATED ANTPITTA *Grallaria albigula.* This rare species was known only from 2 specimens collected at Samaipata, Dpto. Santa Cruz (Bond & Meyer de Schauensee 1942) and 7 specimens from Santo Domingo, Dpto. Puno, Peru

(Chapman 1923, Bond 1950). On 13–14 October 1983 we heard at least 5 different individuals between 1575 and 1700 m in humid cloudforest about 52 km by road west of Villa Tunari, Dpto. Cochabamba. One pair was observed when they responded to playbacks of their songs, which consisted of 2 mellow whistled notes, the first shorter and lower-pitched than the second. The birds hopped about on the ground in and near a narrow ravine well-shaded by a canopy of epiphyte-laden trees averaging about 10 m in height. The undergrowth, which contained only small, scattered thickets of *Chusquea* bamboo, was light to moderately dense.

White-naped xenopsaris *Xenopsaris albinucha*. On 3 October 1983 we saw one in the crown of an *Acacia* tree in cut-over second-growth near the old sewage ponds on the northeast outskirts of Santa Cruz de la Sierra. This solitary bird made short upward sallies to glean *Acacia* leaves and twigs. The species was previously known to Bolivia only from one specimen collected at Orión, Dpto. Beni (Gyldenstolpe 1945) and from a record from Chatarona, Dpto. Beni (Meyer de Schauensee 1966).

Pale-footed swallow *Notiochelidon flavipes*. Recent records of this little known species were summarized by Parker & O'Neill (1980) and Parker *et al.* (1981). In addition at least 20 were seen over Siberia cloudforest (17° 54'S, 64° 29'W), Dpto. Santa Cruz, on 18 October 1979 (R. A. R. and Robert Ridgely). We saw 1–2 groups of 10–15 over Siberia cloudforest at 3000 m, on 8 October 1983; 10+ over Chapare cloudforest at 3200 m, along the new Cochabamba-Villa Tunari Road, Dpto. Cochabamba, on 11 October 1983; and 4 over Chapare cloudforest at 2570 m (same road), on 14 October 1983.

Bank swallow *Riparia riparia*. This migrant from North America has been reported from Bolivia only in Dpto. Santa Cruz (Meyer de Schauensee 1966). On 3 October 1982 R. A. R. saw one with a flock of *Hirundo rustica* northeast of Santa Cruz de la Sierra. We saw one with a group of 10+ *H. rustica* over a small pond 8 km east of Montero, on 3 October 1983. 1–2 were also noted with many *Notiochelidon cyanoleuca* and several *H. rustica* over a pond about 1 km northwest of San Isidro (18° 03'S, 64° 25'W), Santa Cruz, on 8 October 1983. One was seen at Lago Uru-Uru, Dpto. Oruro at 3700 m, on 16 October 1983, with an apparently migrating flock of *H. rustica*.

Cliff swallow *Hirundo pyrrhonota*. Remsen & Taylor (1983) reported the first record of this North American migrant for Bolivia, a specimen collected in Dpto. Chuquisaca. J. V. Remsen, Jr. had seen this species nearly every day, 23 Nov–5 Dec 1976, from as few as 5 to as many as 200 per day, at Estancia Inglaterra, along the Rio Yata, Provincia Yacuma, Dpto. Beni; none was seen there 6–24 December. Remsen had also seen 5 others over Cochabamba city, Dpto. Cochabamba on 1 November 1976. R. A. R. saw a flock of 30+ about 5 km south of San Isidro, Dpto. Santa Cruz on 5 October 1982. We observed 2 about 1 km northwest of San Isidro on 9 October 1983. R. A. R. and Robert Ridgely saw 2 at Lago Uru-Uru, Dpto. Oruro, on 25 October 1979; we saw 2 in the same locality on 16 October 1983. We noted several with a group of *H. rustica*, *H. andecola*, and *Notiochelidon cyanoleuca* at a small pond about 8 km north of the city of Oruro on 16 October 1983.

The following sight records obtained during our trip were the first for their respective Departments (J. V. Remsen, Jr., M. A. Traylor, Jr., and Gatson Bejerano, unpubl. data). Dpto Santa Cruz:– (Santa Cruz city area, 2–5 October 1983). *Egretta ibis, Streptoprocne zonaris, Chaetura brachyura, Chaetura andrei* and *Passer domesticus;* (Tambo School area, east of Comarapa, 6-8 October 1983) *Vultur gryphus, Circus cinereus, Geranoaetus melanoleucus;* (Siberia cloudforest, 8–9 October 1983) *Columba fasciata, Amazona mercenaria, Aeronautes andecolus, Ensifera ensifera, Synallaxis axarae, Pseudocolaptes boissonneautii, Grallaria erythrotis, Scytalopus unicolor, Octhoeca cinnamomeiventris, Phyllomyias uropygialis, Conirostrum sitticolor* and *Poospiza erythrophrys.* Dpto. Cochabamba:– (Villa Tunari area, 11–13 October 1983) *Sterna superciliaris, Forpus xanthopterygius, Myiopagis caniceps, Tersina viridis;* (Chapare cloudforest, between Villa Tunari and Cochabamba) *Oroaetus isidori, Grallaria guatimalensis* [RAR], *Scytalopus unicolor, Scytalopus femoralis.* Dpto. La Paz:– *Aeronautes montivagus.*

Acknowledgements. We thank the following members of our tour group for making our Bolivian trip possible and for helping us find and verify many of the records reported above: Alan and Liz Chambers, Charles and Mary Jane Greene, Norman Hill, Robert Jeffrey, Hank and Irma McCall, Fred and Naomi Loetscher, Cliff Pollard, Phoebe Snetsinger and Ed Thayer. We also thank J. V. Remsen, Jr. and Robert Ridgely for allowing us to incorporate their previously unpublished records.

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Specimens of *Calandrella obbiensis* and *Sarothrura ayresi* in Milan Museum

by N. J. Collar & C.G. Violani

Received 14 February 1984

Specimens of the Obbia Lark *Calandrella obbiensis* and White-winged Flufftail *Sarothrura ayresi* being rare in collections, we report here on 2 of each that have recently come to light in the Museo Civico di Storia Naturale, Milan (MSNM).

We are indebted to the scientific staff of the museum for kindly granting access to the ornithological collections in their care.

Calandrella obbiensis

In his illumination of the status and distribution of *C. obbiensis,* Ash (1981) was unable to trace White's (1961) source for the information that the species was known from Mogadishu, Somalia. The source is White (1958), who referred 2 unidentified specimens shown him by Dr Moltoni in Milan in 1956 to this species. On 14 December 1983 these specimens were relocated, and their identity confirmed (C. G. V.). Although the head markings (as given in Ash 1981) are not easily discernible, their general colouration and tail pattern agree very well with Ash's description. Both were collected by Dr Pericle Soldi on 14 March 1954, 1 km from Mogadishu. They were not sexed and they measure (mm) (MSNM 28889 given first, 28916 given second): exposed culmen 10, 13, wing (pressed) 64, 66.5, tail 43.5, 43, tarsus 19, 22, hind claw 11, 12.

Sarothrura ayresi

Guichard (1948) stated that Patrizi was known to have collected at least 4 specimens of *S. ayresi* in Ethiopia, but that only one, a male, was known to have survived, this being in the Coryndon Museum, Nairobi, Kenya. Keith *et al.* (1970) list 2 specimens in Nairobi, both collected at Antotto, Ethiopia, a male on 12 June 1942 and a female dated simply 1939; G. R. Cunningham-van Someren kindly informs us that this female was in fact also collected by Patrizi. On 14 December 1983, 2 further specimens were discovered in MSNM by C. G. V. Both were collected by the Marchese S. Patrizi on 25 July 1939 at Sululta plain, north of Antotto. Ash (1978) has pointed out that where Antotto (Entotto) is written on labels, Sululta is almost certainly intended, and it seems likely that all four Patrizi specimens were collected at the one locality. Since Moltoni & Gnecchi Ruscone (1944) mention that Patrizi collected several White-winged Flufftails at Sululta in July and August 1939, we may speculate that the female in the Coryndon was collected there in the latter month. The 2 Milan birds (♀ 22108, ♂ 22109 in that order) measure (mm): exposed culmen 12.5, 12, wing 73, 73, tail 45, 48, tarsus 26, 22.

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Books Received

Meyer de Schauensee, R. 1984. *The Birds of China.* Pp.602, 36 colour plates by J. H. Dick & J. A. Gwynne, 39 line drawings, end paper maps. Oxford University Press. £35. 235 x 155 mm.

China's 1195 species in 88 families are here included in one volume for the first time. Each species has an account of its field characters, its distribution in China, and notes on status, habitat, taxonomy, doubtful records and world distribution. There are 20 introductory pages, a bibliography, list of variant names, a checklist and indices of English and scientific names. There is a foreword by Dr Dillon Ripley and the copyright is held by the Smithsonian Institution.

It is unfortunate that it is not clear whether the distribution in Kwantung includes Hong Kong. Hong Kong species are specifically designated, but there are omissions; as one example, *Larus saundersi* is not shown as occurring in Hong Kong, and *Stercorarius longicaudus*, which has been recorded once in Hong Kong (*Bull. Brit. Orn. Cl.* 97(2):36) is omitted altogether from the list. Although not pocket size, this well produced and illustrated (especially by Gwynne) book is essential luggage for anyone visiting China to see its birds, as well as being a very useful condensed reference work for anyone's library. The chances of increased observations in China make it most likely that an updated and revised edition will be most welcome in the next comparatively few years.

Baker, R. R. 1984. *Bird Navigation: the solution of a mystery?* Pp. 256, diagrams, line drawings and illustrations. Hodder & Stoughton. £9.75 (flexible covers). 235 x 155 mm.

The author's text is aimed at the biology student in a series of chapters which take the reader systematically through recent and present theories of bird navigation. In a discussion of the major types of investigation he introduces the hypothesis that a migrant creates a "familiar area", viz. a mosaic map built of separate individual landmarks (excluding the intervening topography) and memorised in terms of their relative compass bearings; and he goes on to demonstrate to his satisfaction that through sight, sound and smell and, in particular, recognition of magnetic compass bearings, experimental data support the hypothesis. A major conclusion after careful sifting of the contradictions in the past and their causes, is that "birds live in a world that is strongly polarised into compass directions". Grid maps are discussed but "none of the global gradients of potential use . . . has sufficient support from critical evidence to be considered viable".

In the penultimate chapter, short-distance homing results are critically examined and the author concludes that the birds can create a "mosaic map of an area roughly the size of the southern half of England and Wales", aided by a "variety of efficient compasses". The final chapter extends this process to long-distance migration, can find no support for the clock and compass model nor the goal area navigation theory and expounds the author's version of the exploratory migration model. This considers that the first year bird sets up intermediate familiar areas (over a matter of days probably) during the first outward migration (at least) in that inborn preferred direction which "felt right relative to the magnetic field", each target area being related to the last or next by compass directions. The winter quarters are reached when the "threshold for further migration is no longer exceeded" in a hospitable area. The return journey is made in the same way and the breeding area recognised from memory of an area learned the previous autumn. Throughout the book most reliance for this theory is placed on magneto-reception. Discussion of sun compass and astronavigation by comparison is extremely limited.

The presentation is lucid, simple, modest and plausible, much ground is covered in a logical order and the bibliography is generally comprehensive. However, there may be more than one reader who will doubt that by "the use of landscape and compass maps, welded together in sequences of route-based and location-based navigation" birds may migrate over great distances of sea and desert, or be as confident as the author that nothing in the "admittedly meagre evidence" suggests that there is "still some major reference system or navigation technique that remains hidden from us". The book is certainly worth reading with a view to the reader making up his own mind.

Ash, J. S. & Miskell, J. E. 1983. *Birds of Somalia, their habitat, status and distribution. Scopus* Special Supplement No. 1. Pp. 97. Flexible covers. £6.50 (US $10) surface post free for non *Scopus* subscribers outside Kenya. Obtainable from D.A. Turner (E.A.N.H.S.), P.O. Box 48019, Nairobi, Kenya. 210 x 150 mm.

An annotated checklist by 2 authors with a uniquely wide personal knowledge of one of the least known African countries and its 639 species, of which the authors have astonishingly seen all but 5. Museum material has not been examined, but sub-specific names are used where appropriate. The literature has been comprehensively reviewed, but only 36 references are included in this work — the authors hope to publish a complete bibliography in the future.

The introductory 7 pages only briefly cover topography, climate, habitats, sources, status and distribution. The checklist is "modelled on *The Birds of East Africa*" (Ed. P. L. Britton, 1980), but the annotations are very brief, and the distribution for each species is only enumerated in quadrants of ½° grid squares. Breeding distribution is inlcuded but without dates. There is only one map, of the grid squares.

The authors are to be congratulated on providing a new source of information on Somalia's avifauna, however incomplete, and a most useful addition to the avian literature of Africa.

Moore, Alick. 1983 (published May 1984). *A Field Guide to the Warblers of Britain and Europe*. Pp. 145. Illustrated in colour (32 plates) and black-and-white by Bryon Wright. Distribution maps. Oxford University Press. £9.50 (hard covers). 210 x 140 mm.

Each of 53 species (of which 39 breed) is illustrated in colour and line drawing. The text includes a plumage description applicable to a detailed view in the field, field and differential characteristics, description of the song, and a distribution map for Europe and North Africa (in almost all cases). There is a brief set of references. The short introductory "Importance and discipline of identification" of this difficult group of Old World warblers is apt and includes a useful questionnaire to apply to each fleeting sighting of an unknown warbler, which is creditably intended to diminish the number of facile identifications after only brief glimpses — how successfully will depend on practical use of the book in the field.

Ali, Salim & Ripley, S. D. 1983 (published June 1984). *Handbook of the Birds of India and Pakistan. Compact Edition.* Pp. 737. 113 full page colour plates, black-and-white drawings, distribution maps, etc. Oxford University Press, Delhi. £45. 320 x 220 mm.

The complete text and line drawings (and the appendices for Vols 1-4) of the 2nd edition of Vols 1-3 and of the 1st edition of Vols 4-10 of the *Handbook* reproduced photographically in a reduced form, so that at 70% of its original size, 4 pages (including their pagination) are contained on one. Page headings conveniently indicate the volume and relevant page numbers. It is important to note that the size magnifications given below each drawing have *not* been altered (as a warning in the introduction states), but are 3 tenths smaller than quoted. The colour plates are original size, 24 of them new, replacing most of those taken from Smythies' *Birds of Burma.* The Introduction and indices relevant to the whole work and the Eclectic Bibliography from Vol 10 are included. The text, which is easily readable at least for the purpose of reference despite its small size, is unaltered, but some captions include taxonomic changes which have occurred since the first edition.

The publishers state that difficulties during the manufacturing process have affected the quality of the book, so that the price is £45 instead of the previously announced £75. Despite some below standard plates, and the small print, the reduced price for such an immense comprehensive work of reference of such importance is by no means excessive and the experiment in miniaturisation can be considered a success.

IN BRIEF

Descriptions of the eggs of two lories previously undescribed

Mrs Rosemary Low recently presented some parrot eggs to the British Museum (Natural History). Of these, the eggs of 2 species, laid in captivity, appear to be previously undescribed in the literature:

Trichoglossus iris Iris lorikeet. One egg 23.5 x 19.5 mm, ovoid-spherical, white and not glossy. Registered no 1984.4.1

Trichoglossus goldiei Goldie's lorikeet. Two eggs 21.85 x 18.7 and 21.65 x 18.7 mm, almost spherical, white, and not glossy. Registered no 1984.4.2-3.

9 July 1984 Michael Walters

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The *Bulletin* is now being sent by Bulk Air Mail to all European destinations outside the British Isles and by Accelerated Surface Post to almost every destination outside Europe. This will only apply to copies despatched from the printers on publication. Those whose subscriptions have not been received by the beginning of a month of publication will have their copies despatched by surface mail, after their current subscription has been paid.

Many copies of the *Bulletin* must get thrown away annually by members, or their relatives, which the Club would welcome. Please send ALL unwanted copies, and ask your Executors to do the same, to the Hon. Treasurer at 53 Osterley Road, Isleworth, Middlesex TW7 4PW at any time. Postage will be refunded if requested.

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British Ornithologists' Club

Edited by

Dr. J. F. MONK

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Volume 104 No. 4 December 1984

FORTHCOMING MEETINGS

Tuesday, 15 January 1985, at 6.20 p.m. for 7 p.m. in the Senior Common Room, South Side, Imperial College, Prince's Gardens, London, S.W.7, **Dr Alan Knox** of the British Museum (Natural History), Tring and lately of Aberdeen will speak on **Crossbills.** Those wishing to attend should send their acceptance with a cheque for £7.30 a person to reach the Hon. Secretary at 2 Chestnut Lane, Sevenoaks, Kent TN13 3AR (telephone Sevenoaks [0732] 450313) not later than first post on Thursday, 10 January 1985.

Tuesday, 2 April 1985 at 6.20 p.m. for 7 p.m. in the Senior Common Room, SHERFIELD BUILDING, Imperial College, London, S.W.7, **Dr Francoise Dowsett-Lemaire and Mr R. J. Dowsett** will speak on **A Survey of the Endangered Forest Birds of Malawi.** There will be a buffet supper with hot dishes on the menu, and those wishing to attend should send their acceptance with a cheque for £4.80 a person to reach the Hon. Secretary (address above) not later than first post on Thursday, 28 March.

Dr Dowsett-Lemaire and Mr Dowsett have an outstanding knowledge of the birds of Malawi and we are very glad that it has been possible to arrange for them to speak to the Club during their brief visit to this country.

PLEASE NOTE THAT THIS MEETING IS NOT AT OUR USUAL VENUE. THE SHERFIELD BUILDING IS IN THE MAIN BLOCK OF IMPERIAL COLLEGE, ON THE WEST OF EXHIBITION ROAD, WHERE THE SENIOR COMMON ROOM IS ON LEVEL 2 OF THE SHERFIELD BUILDING.

Tuesday, 21 May 1985 at Imperial College, **Mr W. H. M. Wilkinson,** Chairman of the Nature Conservancy Council, will speak on **Nature Conservation in Great Britain.**

Tuesday, 2 July 1985. Dr Brian Wood of University College, London will speak on **Waterfowl Conservation and Wetland Management in Tunisia and Algeria.**

COMMITTEE

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Bulletin of the
BRITISH ORNITHOLOGISTS' CLUB

Vol. 104 No. 4 Published: 20 December 1984

The seven hundred and fifty-fifth Meeting of the Club was held in the Senior Common Room, South Side, Imperial College, London, S.W.7 on Tuesday, 18 September 1984 at 7 p.m. The attendance was 19 Members and 10 guests.

Members present were: B. GRAY *(Chairman)*, Major N. A. G. H. BEAL, P. J. BELMAN, K. F. BETTON, Mrs DIANA BRADLEY, P. A. BROWN, D. R. CALDER, P. J. CONDER, Sir HUGH ELLIOTT, D. GRIFFIN, R. H. KETTLE, J. KING, Revd G. K. McCULLOCH, C. F. MANN, Dr J. F. MONK, R. E. F. PEAL, S. A. H. STATHAM, N. H. STONE and K. V. THOMPSON.

Guests present were: I. LEWIS, Mrs ISABEL McCULLOCH, K. MORTON, A. J. PRATER, J. A. RANDALL, Mr and Mrs C. STILEMAN, Mr and Mrs A. TYE and H. M. V. WILSDON.

Mr A. J. Prater addressed the club on Waders. He gave examples of points of much interest that arose from the ecology of this group of birds and led on to a highly stimulating discussion.

The seven hundred and fifty-sixth Meeting of the Club was held in the Senior Common Room, South Side, Imperial College, London, S.W.7 on Tuesday, 20 November 1984 at 7 p.m. The attendance was 22 Members and 10 guests.

Members present were: B. GRAY *(Chairman)*, P. J. BELMAN, K. F. BETTON, Mrs DIANA BRADLEY, D. R. CALDER, J. H. ELGOOD, Sir HUGH ELLIOTT, A. GIBBS, D. GRIFFIN, P. HOGG, R. H. KETTLE, Revd G. K. McCULLOCH, C. F. MANN, Dr J. F. MONK, Miss TERUYO OBA, R. E. F. PEAL, Dr D. W. SNOW, S. A. H. STATHAM, N. H. F. STONE, K. V. THOMPSON, R. J. WATLING and Lieut.-Col. T. C. WHITE.

Guests present were: Miss MARGARET BARRY, J. S. S. BEESLEY, Dr C. K. CATCHPOLE, B. HANSON, J. B. HEIGHAM, Mrs ISABEL McCULLOCH, Mr and Mrs G. H. SEARLE, R. E. SHARLAND and Mrs BARBARA SNOW.

Dr Clive Catchpole gave a sparkling address on "Evolution of Bird Song". He gave a synthesis of an important part of his work on the genus *Acrocephalus* in investigation of the function of bird song in sexual selection and in the holding of territory. There followed a lively and quite extensive discussion on this and on broader issues arising from it.

Dr. A. S. Richford has sent the following account by himself and J. M. Platt to summarise his talk following the dinner held on 3 July 1984.

The past, present and future status of Black Vultures in Mallorca.

During the last 100 years the European Black Vulture *Aegypius monachus* has declined throughout the Western European part of its range and is now largely restricted to the Iberian Peninsula and the island of Mallorca. The results of 2 recent censuses of the Mallorcan population have been published more fully in the papers cited below.

In 1973, ASR and a colleague visited Mallorca to obtain an accurate census of the Black Vulture population and assess the factors threatening its survival. Many individual birds were recognisable on the basis of missing flight feathers, enabling us to estimate the population's size by comparing the number of times known birds were seen during an 8-week study period with the total number of vulture sightings. This method yielded an estimate of 40 birds, a significantly lower figure that that of 67 birds presented by a previous worker in 1967. Interviews with local government agricultural officials and farmers revealed that sufficient sheep and feral goats were lost during the year to provide ample carrion for such a population, leaving human interference as a likely cause of the population's decline. Though protected by law, we were told by local ornithologists that vultures were frequently shot casually by hunters, though they were not usually particularly sought as quarry. We were also told that hunting activity in the vicinity of vulture nests often caused the sitting bird to desert long enough for the single egg to fail. Goat is a popular dish at Easter time, when vultures are incubating, and numbers are often shot on the cliffs where vultures breed.

These dual pressures on breeding success and adult survival seemed more than adequate to explain the decreasing numbers of vultures.

In 1983 we were able to visit Mallorca again to investigate the current situation, to observe any changes in the population's size and to assess the prospects for its future. Using the same observational technique as before, we obtained comparable data which showed, to our dismay, a decline to about 20 birds in total. The population had halved in size in less than 10 years. Government conservation officials told us that, despite a recently imposed heavy fine for shooting vultures, hunting continued, and local ornithologists have found 15 vulture carcasses with gunshot wounds in the last 10 years. Conservation laws are poorly policed and there have been no convictions for killing vultures. Breeding success remains low, presumably due to the same disturbances suspected in 1973. Local ornithologists estimate that of the 40 breeding attempts observed between 1972 and 1981 only 15 have resulted in fledged young. Poor hatching success is specifically to blame for this. Of the 40 eggs laid, only 16 hatched, of which only one hatchling failed to fledge. Although the one failed egg examined was found free of pesticides, it is possible that pesticides may be an important factor in breeding failure.

In our opinion it is doubtful whether the population can long survive under present circumstances. The local branch of the Spanish conservation body, ICONA, put out carcasses to supplement the natural food, and has campaigned for extra protection for all birds in Mallorca — their conservation posters aim to educate people in bird protection. However, despite their efforts and the apparent ready availability of suitable habitat and natural food, the population seems unable to be sustained in the face of continued persecution and disturbance.

Acknowledgements. We would like to thank Gavin Stewart, David Houston, Juan Mayol and other members of the Grupo Ornitologica Baleares and the British Ornithologists' Union for help, advice and information, and financial support.

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Notes on Wallace's Standardwing *Semioptera wallacii*

by K. D. Bishop

Received 14 February 1984

Wallace's Standardwing *Semioptera wallacii* (for the use of this nomenclature see LeCroy 1983), the westernmost species of bird of paradise, is confined to the north Moluccan islands of Halmahera (race *halmaherae*) and Batjan (nominate *wallacii*). It is a highly distinctive species, the only one in its genus, but is remarkably poorly known. The only published observations of the species in the wild appear to be those by Wallace (1869) and Goodfellow (1927). The description by Goodfellow of his difficulties in finding the species – failing entirely on Batjan, and succeeding on Halmahera only after 3 weeks of intensive enquiry – suggests that the species was then both elusive and rare. Specimen records listed by Gilliard (1969) show that the species continued to be collected on Batjan up to 7 July 1953 and on Halmahera; but for the past 30 years it has apparently remained unreported. This is most disturbing in view of gathering evidence of forest destruction in the north Moluccas (Smiet 1982) and the failure of one naturalist to find the bird in a year's study of the fauna of Halmahera (National Geographic North Moluccas Expedition) in 1980–1981 (A. Messer *per* N. J. Collar). However, on 24 and 25 August 1983, I located a number of Wallace's Standardwings in hill forest on Halmahera, and was able to make brief notes on their behaviour. The precise site is not given here as the status of the species is currently in doubt, but this information has been lodged with the International Council for Bird Preservation, Huntingdon Road, Cambridge.

Observations

The species was first observed at 450 m altitude in partially disturbed forest as I climbed the steep slopes of an extinct volcano. Initial sightings were frustratingly brief, the birds only perching momentarily before flying into thick cover, but several were evidently present. In addition to perching in dense vegetation within 10 m of the ground, individuals were frequently seen clinging like woodpeckers (Picidae) to the side of large trees and then hopping upwards grasping vines with their feet. Wallace (1869) also commented on the woodpecker-like habits of this species. The birds moved rapidly from perch to perch usually by short, low-level but rapid glides. In flight they appeared broad-winged and, overall, a pale biscuit colour. Occasionally small groups (<5) of Paradise Crows *Lycocorax paradiseus* moved through the same area and several Standardwings apparently reacted by calling in a series of accelerating nasal growls.

Moving further up the slope of the volcano, with the forest becoming less disturbed and with only occasional garden clearings, more than 20 individual Standardwings, including 2 fully plumaged adult males, were seen in the next 2 hours. The birds appeared to be distributed in distinct groups, which presumably related to their display sites, in tall forest on the top of steep ridges. Both sexes seemed to be confined to the relatively shady middle storey of the forest, ranging from c. 2–12 m above the ground. The birds appeared less shy in the undisturbed forest and good views were obtained as they fed and displayed, occasionally uttering their characteristic growls. Aside from the remarkable plumes of the males, the most noticeable characteristic of the birds was the brilliant orange colour of their legs. In sunlight when perched sideways on tree-trunks, the females were seen to have a beautiful, metallic violet patch on their wings.

During this and the following day the local forest was prospected from sea level to 900 m. Standardwings were present from 350–900 m and their range could be expected to extend to the summit at 1300 m. They appeared most common at 485–750 m.

Display

At 07:45 on 25 August, in primary forest beside a partially cleared native garden, 2 males displayed for c. 12 minutes to about 5 females. Both males displayed simultaneously, either on the side of a tree or on small horizontal branches close to the trunk. The complete sequence of the display was not observed. The birds lent forwards and downwards, constantly fluttering and flickering their partially extended wings. The iridescent green breast-plate was fully extended, catching the light in a manner very similar to that I have witnessed in the display of the Superb Bird of Paradise *Lophorina superba*. The 2 standards on either wing moved independently of each other like antennae, one moment vertical, then horizontal and at right-angles to the body. These postures generally agree with the far more detailed account of display observed in captive specimens by Friedman (1935). Throughout the display the males called excitedly with their characteristic growls as well as making a loud "cheung, cheung cheung". They never remained at one perch for more than 30 secs, but constantly moved through what appeared to be an established sequence of perches, closely attended by female-plumaged birds, which frequently passed the males and jumped around them on nearby branches.

Distribution

Although Gilliard (1969) states in the main text of his work that Standardwings are only found on the islands of Batjan and Halmahera, he notes in his appendix (p. 419) that a single specimen was collected by A. M. R. Wegner on 14 June 1953 at Bira, Obi. I examined this specimen in the Museum Zoologicum Bogoriense: it is an adult male, wing 151 mm, tail 83.4 mm, bill 31.1 mm and tarsus 40.0 mm. The original label in fact states "Bira-Bira". Examination of various maps and gazetteers of the region has failed to reveal a locality named Bira-Bira on the island of Obi, although there is a tiny islet by this name less than 2 km off the cost of Batjan (0°35'S, 127°17'E). Suitable habitat may still exist both on Obi and Batjan (MacKinnon & Artha 1981), but Indonesian place names have changed frequently during the last 40 years, and the exact provenance of this specimen must remain in doubt until further information becomes available.

Acknowledgements. I am most grateful to the staff of the Museum Zoologicum Bogoriense for permitting me to examine their collection, to my wife Caroline Ash (PhD) for her help with the typescript, to I. J. Abramson, C. Bergmann, N. Chesterfield, J. Danzenbaker and P. Kaestner for their company during the trip and not least to Dr. N. J. Collar (Red Data Book Compiler, International Council for Bird Preservation) for his generous and invaluable help and advice in preparing the manuscript.

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A new race of Red-billed Oxpecker *Buphagus erythrorhynchus* from Kenya

by G. R. Cunningham – van Someren

Received 22 February 1984

While working through a series of Red-billed Oxpeckers in the National Museum, Nairobi, Kenya, 3 richly coloured specimens were found that are quite distinct from all other races described from Ethiopia, Somalia, Uganda and Kenya which should be recognised as

Buphagus erythrorhynchus archeri subsp.nov.

Holotype. Reg.No. 15491/1263 in National Museum, Nairobi, Kenya, collected at Archer's Post on the Ewaso Ng'iro River, Samburu District (37°40'E, 0°40'N) at 3000 ft on 3 Aug 1961 by A. L. Archer.

Description. (Colour nomenclature from Smithe's Naturalist Colour Guide: The American Museum of Natural History.) Whole head and throat with 'pinkish tinge' Drab (27). Mantle, back, scapulars, secondaries to rump Dark Drab (119B). Rectrices upperside Hair Brown (119A) with grey reflection and faint bars, underside Cinnamon Drab (219C). Upper breast Sayal Brown (223C) merging below to Tawny Olive (223D) with belly, flanks and undertail-coverts Pale Pinkish Buff (121D). Primaries upper surface Olive-Brown (28) outer web darker, underside paler. Alula black. Bill red, iris orange-red and orbital ring yellow. Legs and toes dark brown. Compared with nominate *erythrorhynchus* and the grey *B.e. invictus* it is brighter browner.

Weights (g) and measurements (mm). ♂ holotype, wing 105.0, tail 85.0, exposed culmen 17.0, weight 46.0. Paratype, ♂ same day and place, wing 109.0, tail 85.0, exposed culmen 17.0, weight 47.5 (Reg. No. 15490/1263). Included within the range of this new subsp. is a ♂ (Reg. No. 15492/1263) from Ruiru, Kenya, 37°0′E, 1°15′S, collected on 31 Jan 1961 at 5000 ft. Wing 110.0, tail 93.0, exposed culmen 18.0.

Distribution. Samburu District of northern Kenya south to Ukambani, Ruiru and the upper Tana River in dry Acacia bushland between 3000 and 5000 ft.

Remarks. This small richly coloured race has been compared with both the nominate *B.e. erythrorhynchus* from Ethiopia and the "smallest and palest" form *B.e. invictus* from Somalia, whose range is given by Clancey (1962) as "Somalia, to adjacent Abyssinia (Ogaden) and the eastern Kenya Colony", as well as with a series from the highlands of western Kenya and Uganda and with *B.e. scotinus* from eastern Tanzania. This new race occupies the semi-arid Acacia-Commiphora bushland ecosystem with less than 400 mm rainfall, thus separating the population of the small *B.e. invictus* from the larger birds of the moister Kenya highlands over 5000 ft, *B.e. caffer* and from the nominate of the Ethiopian highlands.

Reference:

Clancey, P. A. 1962. An additional race of *Buphagus erythrorhynchus* (Stanley) from the Somali Arid District. *Bull. Brit. Orn. Cl.* 82: 19–20.

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The last St. Kitts Bullfinch *Loxigilla portoricensis grandis* (Emberizinae) and the extinction of its race

by Storrs L. Olson

Received 20 March 1984

The island of St. Kitts, in the northern Lesser Antilles, was once inhabited by a large endemic subspecies *Loxigilla portoricensis grandis* Lawrence of the Puerto Rican Bullfinch *Loxigilla p. portoricensis* Daudin. The form was known previously only from 9 specimens collected by F. A. Ober in 1880, whereafter it could no longer be found and was presumed extinct (Danforth 1936). Possible explanations for the disappearance of this population were discussed by Raffaele (1977). Bond (1936, 1956) originally proposed that the birds had been eliminated by the monkey *Cercopithecus aethiops* that was introduced to the island before

1700. Greenway (1958) doubted this explanation and Raffaele (1977) presented several cogent arguments against it. Instead, Raffaele proposed that the restricted distribution of *L.p. grandis* to the upper slopes of Mt. Misery made it susceptible to hurricanes and specifically that the great hurricane of 7 August 1899, followed closely by another on 30 August, was responsible for the disappearance of the species on St. Kitts.

A hitherto overlooked specimen documents the persistence of *L.p. grandis* on St. Kitts for at least 30 years after the hurricane of 1899. This specimen (National Museum of Natural History, Smithsonian Institution, USNM 318207) was collected by Paul Bartsch on 26 July 1929 and preserved whole in alcohol, which doubtless contributed to its being overlooked. That someone may have sought to verify the record subsequently is suggested by a catalogue note to the effect that the specimen was "not found March 1942," although it has now reappeared.

Bartsch's field notes in the Division of Mollusks, Smithsonian Institution, show that on 26 July he was on Mt. Misery, where he did not quite gain the summit but followed one of the mountain's spurs all the way to the crest. He specifically mentioned that the "hurricane of last year [had] almost obliterated the trail," which further suggests that the bullfinch was capable of surviving hurricanes on Mt. Misery. Bartsch was on something of a whirlwind boat tour of the Lesser Antilles and apparently was on St. Kitts only on 25 and 26 July, arriving on Nevis later on the same day that he collected the bullfinch. His discovery of the bullfinch, the significance of which he evidently did not appreciate, seems the more curious considering the perfunctory nature of his visit and the fact that at least 6 collectors had been on St. Kitts between 1880 and 1929 without finding it (Danforth 1936); indeed, James Bond had preceded Bartsch to the island by only 7 months without encountering the species. More recent field work by H. A. Raffaele in July 1972, M. R. Browning in April 1977 and D. W. Steadman in February 1982 has failed to reveal the bird, so it is perhaps safe to assume that *L.p. grandis* is now indeed extinct.

The fact that *L.p. grandis* was restricted historically to the higher slopes of Mt. Misery prompted Raffaele (1977) to suggest that its large size arose through character displacement and that its restricted distribution resulted from competition with the Lesser Antillean Bullfinch *Loxigilla noctis.* Notwithstanding the fact that unequivocal documentation of either character displacement or interspecific competition seems to have eluded a large number of ecologists for decades, this explanation seems unlikely considering that the size difference between the bills of *L. noctis* and either of the forms of *L. portoricensis* (see measurements in Ridgway 1901) is as great as or greater than that between any of the sympatric, co-existing species of *Geospiza* (*s.s.*) in the Galapagos (Lack 1947).

L.p. grandis could have been more widely distributed in the past, possibly also occupying at least the islands of Nevis and St. Eustatius, which would have been coalesced with St. Kitts into a single island during the lowered sea levels of the last glacial period. Despite preliminary palaeontological surveys (D. W. Steadman) no vertebrate remains have been recovered from any of these islands except for those of a few larger species in archaeological deposits on St. Kitts (Wing 1973). There is no evidence of *L.p. grandis* in the known fossil faunas of Antigua or Barbuda or from the scantier remains so far recovered from the Anguilla Bank (Steadman *et al.* 1984 and Steadman pers. comm.).

The restriction of *L.p. grandis* to the higher slopes of Mt. Misery on St. Kitts could perhaps be due to Holocene destruction of lowland habitats. On St. Kitts, lowland areas have "sustained agriculture for three centuries" and today "the foothills . . . are cultivated as high as possible with sugar below and ground provision above" (Bent 1971:93). Palaeontological studies have shown that man-caused habitat destruction was responsible for the extinction of numerous small vertebrates on Antigua within the past 3500 years (Steadman *et al.* 1984). Many of these extinctions may have taken place during the colonial period, when plantation agriculture usurped the greater part of the land area of the Lesser Antilles (see e.g. Harris 1965).

Drier lowland areas appear to be more favourable for birds in the West Indies (Pregill & Olson 1981) and if wet uplands were not the preferred habitat for *L.p. grandis*, its reduced numbers on St. Kitts in historic times would be understandable. A much diminished population in suboptimal habitat might have been more susceptible to any one of a number of factors, or combination of factors, that might have effected its extinction, though what the ultimate cause may have been is still not readily discerned.

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A nest of the Double-toothed Barbet *Lybius bidentatus* parasitized by a honeyguide in Uganda

by J. F. R. Colebrook-Robjent

Received 14 March 1984

Near Kaazi, c. 10 km from Kampala, Uganda, I found a nest of the Double-toothed Barbet *Lybius bidentatus aequatorialis* on 24 February 1964. One of the barbets flew to a hole 11 m up in a dead stump of an otherwise living tree, with a large black item of prey, probably a beetle. It called on alighting at the nest hole, when a second barbet appeared from inside the chamber and was fed before flying off. The first barbet then entered the nest hole. There were 3 holes in the short dead branch, the one in use being 20 cm from the main trunk. The entrance hole was 47 mm in diameter. The inside diameter of the nest chamber was later found to be 88 mm, the floor being 40.6 cm below the entrance. The nest contained 3 fresh eggs which lay on small wood chips and insect remains. Two of the eggs were barbet's, and appeared deep pink due to their blood-orange coloured yolks showing through the white shells. The third egg was that of a honeyguide, which appeared cream coloured when intact. The barbet's eggs measured 27.5 x 20.0 and 27.2 x 19.5 mm; they were matt and undamaged. The honeyguide's egg, very rounded and glossy, measured 19.6 x 18.0 mm.

Discussion

Although I made no detailed notes on the habitat of this area, it was certainly second growth, heavily degraded by human activity, but with scattered large trees remaining. From the late 1960s to the early 1970s the Kaazi area was under cultivation, mainly bananas and coffee, amidst open grassy patches with thickets and termite mounds and scattered large trees (M. Carswell and R. Frankum). *Lybius* barbets are parasitized exclusively by the Lesser Honeyguide *Indicator minor* in Zambia (pers. obs.) and probably, despite statements in the literature to the contrary, throughout Africa. I have been unable to trace any records where young honeyguides were collected and positively identified as belonging to *I. minor* from nests other than barbets. Nor have I seen any photographs or good field descriptions of young birds which would support the many old statements that the Greater Honeyguide *I. indicator* sometimes victimises barbets or that the Lesser Honeyguide sometimes parasitizes other bird families. Moreover, studies by Short & Horne (1983) suggest that Greater Honeyguides are not strongly attracted to calling by *Lybius* barbets, but that Lesser Honeyguides certainly are, and they show that the 6 specimens collected at barbet call sites in Kenya were all *I. minor*. The honeyguide's egg can be assumed to be that of *I. minor*, but is abnormally rounded and therefore unusually short in length. It may well be also unusually broad. If the length of this egg is multiplied by its breadth a figure of 352.8 is obtained. Length times breadth of 4 Lesser Honeyguides' eggs from Zambia average 346.1 (range 306.9 – 368.5). The volume of the honeyguide's egg from Kaazi thus falls within the range of *I. minor*. Furthermore, Dr. M. Carswell has records of the occurrence of this honeyguide in the general area and habitat of Kaazi and agrees that *I. minor* is the most likely host.

Acknowledgements. I thank Dr. Margaret Carswell and R. Frankum for their helpful comments on the habitat and honeyguides of Kaazi and nearby areas of Uganda.

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Further evidence of a resident Brown Flycatcher *Muscicapa latirostris* in Borneo

by D. R. Wells and C. M. Francis

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Recent evidence of nesting by Brown Flycatchers *Muscicapa latirostris* in northern Thailand (Wells 1982) lends some degree of support to the idea that the blunt-winged populations of this bird scattered through island Southeast Asia are relics within a formerly more continuous eastern tropical breeding range. None is known from more than about a dozen specimens, nevertheless, and only *segregata* of Sumba island, Indonesia is a proven resident (Siebers 1928). *M.l. randi,* collected in February, August and September at only 3 localities (on 2 islands) has been presumed to breed somewhere in the Philippine archipelago (Amadon & duPont 1970) and the status of *umbrosa*, recently described from a single bird taken near Tawau, Sabah State, Malaysian Borneo, has been inferred only from its collection date – 8 July (Wells 1982).

Further fieldwork in Sabah has now produced more specimens of Brown Flycatchers, including 3 additional *M.l. umbrosa,* allowing a better assessment of the morphology and status of this subspecies. One is a female dated 14 March 1982, from newly logged lowland evergreen forest on the Bole river, a tributary of the Segama west of Lahad Datu, E Sabah. Its largest ovarian follicle is recorded as less than 1 mm in diameter and pale tips to the primary coverts suggest immaturity, but the rest of the plumage is adult and the wear of the wing and tail feathers indicates no recent moult in these tracts. It was probably less than 12 months old and at mid March local breeding need not necessarily have begun.

CMF mist-netted the other 2 together in the understratum of high, primary forest near sea level in Sepilok forest reserve (5°25′N, 117°56′E) near Sandakan, NE Sabah on 27 July 1983. He notes that this was at the end of an exceptional drought, which damaged the forest, and that during the same trapping session several species that normally live in the canopy were caught. We cannot be certain, therefore, that these flycatchers would ordinarily have occurred in the understratum. By plumage and degree of cranial ossification these 2 individuals were both fully adult and are likely to have been a breeding, or recently breeding pair. The male had enlarged testes (longest, unilateral, diameters 7 × 4.5 mm) and the female a late stage, but still featherless, brood-patch. Neither carried visible subcutaneous fat and moult of the inner primaries had begun in both (1 and 2, descendent, new in the female; 1 new, 2 over three-quarters grown in the male), on a schedule typical of known resident insectivorous passerines at Sepilok that year (Francis, unpubl.). Apparently suspended primary moult in the female is matched by suspension in other flycatchers of known resident species (*Cyornis* spp) in the same month and is guessed to have been the outcome of severe weather. The other remiges are worn and the rectrices faded and unevenly abraided, especially in the female, as would be expected in birds that had nested.

There seems little chance that this Sepilok pair had migrated from a more distant breeding ground and *umbrosa* is acceptable beyond reasonable doubt as a Borneo resident. It is the first blunt-winged form of *M. latirostris* demonstrated to occur within continental shelf limits (incidentally near the start of island routes into the range of *randi*) and within the known regular winter distribution of long-winged northern migrants. How they interact ecologically is not known yet, but the situation is not an uncommon one among Southeast Asian birds.

Description of new specimens of M.l. umbrosa

In most respects, the new specimens affirm the description of the holotype. Their upperparts, wings and tail are the same umber brown, shading to slightly paler more greyish brown on the throat, breast and flanks. In the Sepilok birds this colour extends to the centre of the chin and throat, which are only finely flecked with white, while the Bole river individual has this area more obviously streaked (a range of variation also found in *M.l. randi*). Distal secondary coverts of the type specimen retain fine, rufous-buff tips forming an abraided wing-bar which, it was suggested, would be more prominent in fresh plumaged birds. None of the new specimens shows any dorsal patterning where plumage is worn but the Sepilok male has renewed one inner secondary. This is fairly boldly margined rufous along its outer edge and rufous-buff at its tip, as in the migratory subspecies *M.l. williamsoni* (Wells 1977), and may be taken to represent the coloration of the new wing-bar as a whole.

The only important colour difference shown by the extra specimens is their lesser development of a pale eyelid ring, reduced in all 3 from being narrow but more or less continuous in the type to merely a scatter of minute grey flecks that would not be visible in the field. In this they approach the breeding population of the Thanon Thong Chai range, NW Thailand (Wells 1982).

Soft parts: iris dark brown, feet dark brown, bill dark brown to blackish except for the base of the lower mandible which is yellow or orange-yellow.

Wing formula: the wing tip comprises primaries 6 = 7 (descendent) in the Bole river bird and 7 in the Sepilok pair (7 = 8 in the type). This range of variation has also been noted in *M.l. randi*. In the closed wing of *umbrosa*, primary 9 falls short of the tip by 3.0–4.3 mm more than primary 5. In *randi* (n = 8) this range is 2.0–4.4 mm.

Measurements: summarised in Table 1.

	Holotype ♂ BMNH 1982.2.1	Sepilok ♂ WFVZ	Sepilok ♀ WFVZ	Bole river ♀ WFVZ
Wing (max. chord)	60	62	65.5	61.5
Tail	49.2	48.8	54.1	52.4
Tarsus	12.5	13.0	13.0	13.4
Nalospi	7.4	7.3	7.3	(shot)
Bill width (at level of nostrils)	4.5	4.5	4.7	4.5
Weight	—	8.0	9.0	9.5

Table 1. Some measurements (mm and g) of the 4 known specimens of *Muscicapa latirostris umbrosa*. (BMNH = British Museum (Natural History). WFVZ = Western Foundation of Vertebrate Zoology).

The additional wing measurements (60–65.5 mm) close the gap with *randi* (whose wing-length range is 65–68 mm), leaving *umbrosa* smaller on average but still individually separable by its browner, less distinctly grey cast upperparts, reduced eyelid ring and more extensively dark-tipped lower mandible.

Postscript.

On 8 July 1984, a fully grown juvenile *M.l. umbrosa* was found by CMF being tended by 2 adults in a recently cleared and burnt area just outside the boundary of Sepilok forest reserve. All 3 specimens were collected by CMF and later prepared by Simon Ambi (SA:58

Ad ♂, SA:60 Ad ♀, SA:61 Juv ♂). Both adults were seen feeding the juvenile on separate occasions, clearly indicating recent local breeding, although the testes of the male had already regressed. Their plumage is very worn, with no patterning left on the feathers, although the female has started moulting the inner 2 primaries. Unfortunately the specimens were all somewhat damaged during initial storage in a freezer, but the juvenile plumage can be partially described:- upperparts, wings and tail very dark brown with large buff spots on the back and head; rufous-buff tips to the greater coverts forming a narrow wing bar; secondaries narrowly edged with rufous, the tertials with broad buff edges; the tail with a narrow rufous tip. From what is left of the feathers, the underparts appear similar to those of the adult, but the chest markings are darker brown.

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Weights and gonad condition of some Thai birds

by David S. Melville and Philip D. Round

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Many studies on the distribution and taxonomy of birds in Thailand have recorded standard body measurements taken from skins (eg. Chasen & Kloss 1932, Deignan 1945, Riley 1938), but little appears to have been published on the weights of Thai birds. Even though some 185,000 birds of 491 species were ringed in Thailand during the Migratory Animal Pathological Survey 1963–71 (McClure 1974a), the only published weights are those given by McClure & Kwanyuen (1973) for 66 species. Even elsewhere in Southeast Asia, only a very few detailed studies on individual species have been reported (Medway 1973, Nisbet 1967, Nisbet & Medway 1972, Ward 1969). Comparatively little has been published on the seasonality of breeding among birds in Thailand (Herbert 1923–26, McClure 1974b, Round 1982), while the only information on gonad condition is that given by Deignan (1945).

In this paper, we present weight and, in some cases, gonad data for 1686 birds of 165 species, collected or examined alive and subsequently released, from 12 sites in NW, NE, Central and SE Thailand during September 1980 to December 1982. No data were collected during the months June to August, but there is a fairly even spread for the rest of the year, with most data for January, April and December. Details for shorebirds will be presented elsewhere. Details of the study sites are given in Table 1.

TABLE 1

Study areas in Thailand for trapping and collecting birds

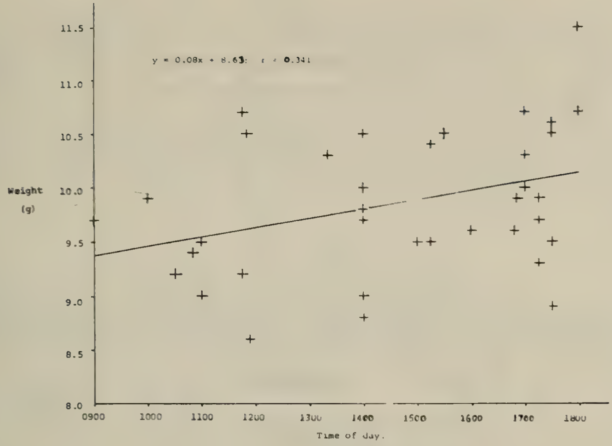
Reference	Location	Coordinates	Habitat and elevation
A	Thathon	20° 03′N, 99° 20′E	Lowland rice paddy and degraded marshland, 480 m
B	Doi Pha Hom Pok	20° 05′N, 99° 10′E	Hill evergreen forest and secondary growth, 1400–2200 m
C	Fang	19° 55′N, 99° 14′E	Lowland rice paddy, 480 m
D	Chiang Mai University Campus	18° 47′N, 98° 58′E	Swampy scrub and grassland, 300 m
E	Doi Inthanon	18° 35′N, 98° 29′E	Hill evergreen forest, 1650–2590 m Secondary growth and scrub, 1300 m. Deciduous dipterocarp forest and bamboo, 825 m
F	Beung Boraphet	15° 43′N, 100° 14′E	Freshwater swamp and scrub, 30 m
G	Khao Yai	14° 26′N, 101° 22′E	Dry evergreen forest, 800 m
H	Bangpoo	13° 30′N, 100° 45′E	Coastal mangrove; freshwater marsh, 0–3 m
J	Samut Sakhon	13° 29′N, 100° 15′E	Coastal mangrove, 0–3 m
K	Bang Phra	13° 12′N, 101° 01′E	Scrub and grassland adjacent to freshwater lake, 50 m
L	Khao Sam Roi Yot	12° 08′N, 99° 55′E	Freshwater marsh, 0–10 m

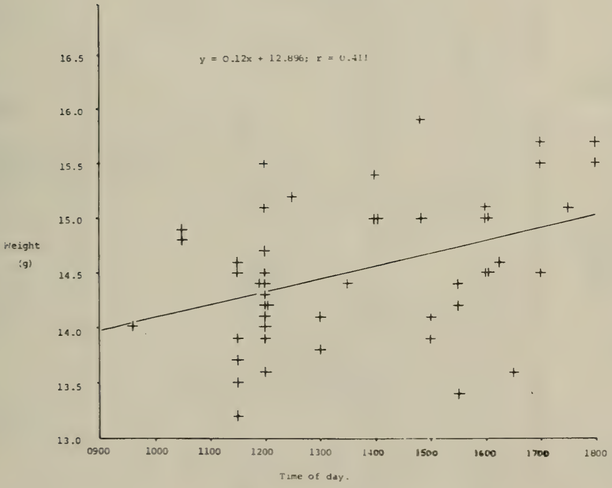
All birds were weighed using Pesola spring balances, birds heavier than 50 g to the nearest 1 g (occasionally to the nearest 0.5 g) while those lighter than this were usually weighed to the nearest 0.1 g. Specimens retained for preparation as museum skins were sexed by dissection and the gonads measured *in situ* using Vernier callipers. Testes were noted as small (inactive) or enlarged (active) and the length of the larger testis was usually measured. Ovaries were noted as inactive unless any individual ova exceeded 0.5 mm in diameter, when the largest ovum was measured. Sex was not recorded for birds released, even in those species with sexually dimorphic plumages, as plumage characters may not always be wholly reliable (eg. a female *Niltava grandis* had blue 'male' plumage on the head and one of the rectrices was blue on the outer web).

Weights

The weight data are too few to permit comparisons between sexes or age classes or to relate to breeding condition or to time of year, although in a few migratory species (eg. *Phylloscopus fuscatus*), there is a suggestion of pre-migratory weight increase in the May samples (Table 2). Interpretation of weights from mixed samples of live and dead birds may need some care; von Bröckel (1973) found that a sample of Garden Warblers *Sylvia borin* weighed within 15 minutes of death averaged more than 1 g (5.5%) lighter than live birds.

Data on weight in relation to time of capture are available for 36 *Alcippe castaneceps* and 49 *A. morrisonia*, 2 mainly insectivorous, forest-living species, caught between 09:00 and 18:00 (data pooled for sites B and E and the months January, February, April and December). Both species showed a gradual increase in mean weights throughout the day (*A. castaneceps* $F_{1,34} = 4.44$, $p<0.05$; *A. morrisonia* $F_{1,47} = 6.36$, $p<0.025$; see Figs 1 and 2 — see Sokal & Rohlf 1981: 471). Although Nisbet & Medway (1972) found that *Acrocephalus* (*arundinaceus*) *orientalis* wintering in reedbeds in lowland Malaysia appeared to be most active in





the first 2–3 hours after sunrise, they did not find any marked changes in mean weights throughout the day. There appears to be no other published information on diurnal weight changes in birds in Southeast Asia.

Gonads

Deignan (1945) noted that the number of species breeding in North-West Thailand increased from November to a peak in April and May, this observation being based primarily on the condition of gonads and the collection of juveniles. Round (1982), working in the same area, found that the onset of nesting for 78 mainly insectivorous species inhabiting hill forest was in February and the relevant gonad data presented here support this conclusion. For many of the forest birds reported both here and by Deignan (1945), enlarged gonads were first recorded in April by Deignan, but were found earlier during this study. Gonad condition was not always recorded by Deignan's collectors and it seems possible that insufficient data resulted in him recording a later start to breeding.

Round (1982) discussed the timing of breeding in NW Thailand and noted that it might be advantageous for hill birds to rear their young to virtual independence before the onset of the rains in May, even though a peak in insect abundance may not occur until later. In moderate elevation forest (600–700 m) at Khao Yai, Central Thailand, McClure (1974b) found peak nesting activity among insectivorous birds between March and June. Herbert (1923–26) found that most birds in the lowlands around Bangkok had nests and eggs during the first half of the wet season, from May to July.

TABLE 2

Weights and gonad condition of some Thai birds.

(R) = resident; (M) = migrant species or subspecies. For key to sites, see Table 1. Data on weights and gonads correspond in serial order. For larger samples, only the range of weights is given. For gonads + = active; − = inactive. Small = testis length < 1.0 mm. In females: 8.3/3.0, for example, indicates ovary 8.3 mm and diameter of largest ovum 3.0 mm.

Species	Site	Month	Sex	n	**Weights** (g)			**Gonads**	
						mean SD	n	activity	length (mm)
Butorides striatus (R)	J	2	—	5	193.5, 209.5, 214.5, 226.5, 232.5	200 ± 24			
	H	9	—	1	170				
	H	11	—	1	180.5				
	J	11	—	1	173				
Ixobrychus sinensis (R)	F	2	M	1	81		1	−	3.0
Ixobrychus cinnamomeus (R)	F	1	—	1	89.5				
	F	2	—	1	131				
Arborophila rufogularis (R)	B	1	M	1	212		1	−	6.0
Turnix tanki (R)	B	4	F	1	85		1	+	8.3/3.0
Treron sphenura (R)	E	12	—	1	280				
Ducula badia (R)	E	12	M	1	510		1	−	14.0
Chalcophaps indica (R)	B	1	F	1	110		1	+	12.0/2.0
Cacomantis merulinus (R)	D	12	—	1	27				
Caprimulgus affinis (R)	E	5	F	1	89		1		7.7
Halcyon smyrnensis (R)	D	12	—	1	86				
Halcyon pileata (M)	J	2	—	1	89				
	H	10	—	2	83, 84.5				
	H	11	—	1	92				
Halcyon chloris (R)	J	2	—	1	67	62 ± 5			
	J	3	—	1	59.5				
	H	9	—	3	62, 65, 65				
	H	10	—	1	65				
	H	11	—	2	51, 58				
Merops philippinus (R)	L	5	F	1	32.8		1	+	11.5/5.4
Merops orientalis (R)	D	12	—	1	17.3				
Megalaima franklinii (R)	B	1	M	1	81		1	+	3.5
	B	2	F	1	85.5		1	+	10.2/2.1
	E	12	F	2	76, 93		2	−	9.8, 8.0
Megalaima asiatica (R)	E	12	F	1	78.0		1	−	7.3
Jynx torquilla (M)	D	12	—	1	37.3				
	K	12	—	1	32.4				
Picumnus innominatus (R)	B	4	F	1	9.5		1	+	3.4/0.5
	B	4	—	1	8.6				
Sasia ochracea (R)	B	4	M	1	8.9		1	+	3.5
	B	1	F	1	9.9		1	−	2.5
	B	4	F	2	9.1, 10.5		2	+	3.2/–, 4.7/2.2
Riparia riparia (M)	F	3	M	1	12.4		1	−	(small)
	F	2	—	2	9.5, 10.6				
	F	3	—	4	11.5, 11.8, 12.4, 13.0				
Hirundo rustica (M)	F	2	M	3	12.8, 13.8, 14.7		3	−	1.5, (small), 3.0
	F	3	M	13	Range 12.7 to 16.6	14.2 ± 1.0	13	−	Range, small to 2.0
	F	2	F	6	11.8, 12.3, 12.5, 13.1, 13.5, 13.6	12.8 ± 0.7	6		3.5, 4.0, 4.5, 5.0, 6.0, 4.0
	F	3	F	9	12.2, 12.9, 13.0, 13.5, 13.7, 14.2, 14.4, 14.4, 14.5	13.6 ± 0.8	9		(small)
	F	1	—	78	Range 11.3 to 15.2	13.3 ± 0.8			
	F	2	—	248	Range 11.5 to 16.4	13.6 ± 0.9			
	F	3	—	143	Range 12.0 to 16.6	13.9 ± 1.0			

Species	Site	Month	Sex		Weights (g)				Gonads	
				n		mean	SD	n	activity	length (mm)
Coracina polioptera (R)	B	1	—	1	35.8					
Pericrocotus solaris (R)	B	1	—	1	14.6					
Pericrocotus brevirostris (R)	B	4	F	1	19.8			1	+	6.8/1.7
Aegithina tiphia (R)	H	4	M	1	12.3			1	+	5.5
	H	4	F	1	12.0			1	−	6.5
	H	4	—	1	13.4					
	H	9	—	1	13.6					
Pycnonotus striatus (R)	E	12	M	3	44.0, 45.5, 47.8			4	−	2.8, 4.6, 2.2, 1.9
	E	12	F	5	40.5, 42.9, 44.3, 45.0, 45.0	43.5 ± 1.9		5	−	8.0, 6.5, 5.1, 6.4, 4.6
	E	12	—	6	43.0, 45.5, 45.5, 46.0, 47.0, 48.5	45.9 ± 1.8				
Pycnonotus melanicterus (R)	E	1	M	1	28.4			1	−	(small)
	E	12	M	1	30.8			1	−	(small)
	B	2	F	—				1	−	4.7
Pycnonotus jocosus (R)	B	4	M	2	26.3, 27.6			2	+	7.3, 7.5
	B	4	F	8	23.3, 24.2, 24.5, 24.9, 25.0, 25.7, 27.6. 27.7	25.4 + 1.6		8	+	4.3/2.0, 6.1/1.7, 5.0/–, 5.5/2.0, 5.8/–, 7.0/3.0, 7.8/–, 7.9/1.8
	B	4	—	12	Range 22.9 to 27.8	25.4 ± 1.4				
	D	12	—	4	25.6, 27.9, 28.8, 29.2					
Pycnonotus xanthorrhous (R)	B	4	M	5	26.2, 26.3, 26.3, 28.9, 31.1	27.8 + 2.2		5	+	7.9, 7.3, 6.0, 8.1, 7.8
	B	4	F	7	24.4, 24.9, 25.1, 26.0, 27.5, 27.9, 28.5	26.3 ± 1.6		7	+	–/4.5, 5.7/1.3, 6.0/1.8, 5.8/–, 6.0/2.0, 10.4/3.1, 6.8/2.0
Pycnonotus aurigaster (R)	B	4	M	1	41.8			1	+	10.7
	E	1	F	1	29.7			1	−	6.4
	B	4	F	1	32.5			1	−	5.8
Pycnonotus flavescens (R)	B	4	M	2	28.9, 28.9			2	+	6.0, 6.1
	E	12	M	1	35.0			1	−	2.7
	B	4	F	6	27.1, 27.8, 27.9, 28.0, 28.1, 29.4	28.9 ± 2.1		6	+	6.9/2.4, –/1.8, 6.9/2.2, 7.6/2.4, 8.4/2.1, 9.9/3.0
	E	12	F	1	31.6			1	−	6.5
	B	4	—	3	27.6, 28.0, 28.0					
Pycnonotus goiavier (R)	K	9	—	1	28.1					
Pycnonotus blanfordi (R)	F	2	—	1	32.1					
	F	3	—	1	33.4					
	D	12	—	6	31.3, 33.2, 33.4, 33.9, 34.0, 35.7	33.4 ± 1.3				
Criniger pallidus (R)	G	11	—	10	41, 43, 44, 45, 46, 47, 48, 48, 49, 52	46 + 3				
Hypsipetes propinquus (R)	E	1	F	1	25.9			1	−	5.9
Hypsipetes mcclellandi (R)	B	2	M	1	36.6			1	+	7.0
	B	4	M	4	31.9, 34.6, 37.5, 37.7	35.4 ± 2.5		4	+	8.0, 8.0, 8.5, 9.5
	E	12	M	2	32.2, 37.2			2	−	2.0, 3.0
	B	1	F	2	32.5, 36.3			2	+	9.0/1.0, 7.0/1.8
	B	2	F	2	36.2, 38.2			2	+	9.5/5.0, 9.5/2.0
	B	4	F	1	34.7	35.1 ± 2.4		1	+	8.0/2.0
	E	12	F	2	31.3, 36.5			2	−	(small), 5.5
	E	12	—	3	37.4, 42.7, 43.5					
Hypsipetes thompsoni (R)	E	12	M	1	41.8			1	−	(small)
Dicrurus remifer (R)	B	4	M		45.4			1	+	10.3
	B	4	—	1	46.0					
Dendrocitta formosae (R)	B	4	F	1	80			1	+	7.5/1.0
Parus spilonotus (R)	B	4	M	1	16.7			1	−	1.0
	E	12	M	1	17.0			1	+	3.0
	E	12	F	1	15.8			1	−	5.0
Sylviparus modestus (R)	B	2	F	1	7.1			1	+	–/4.4
	E	12	F	2	6.2, 6.5			2	−	(small)
Sitta nagaensis (R)	B	1	M		13.9			1	+	4.5
	B	4	M	1	15.5			1	+	4.4
Certhia discolor (R)	B	4	M	1	9.5			1	−	(small)
	B	4	F	1	9.3			1	−	3.3
	E	12	F	1	9.7			1	−	6.0
	B	1	—	2	9.5, 10.2	9.7 ± 0.3				
	B	4	—	1	9.8					
	E	12	—	1	9.8					
Pellorneum ruficeps (R)	E	1	M	1	23.6			1	−	(small)
	E	1	F	1	20.6			1	−	5.1

Species	Site	Month	Sex	n	Weights (g)			Gonads	
						mean SD	n	activity	length (mm)
Pellorneum albiventre (R)	B	4	F	1	18.4		1	+	6.8/1.0
Trichastoma tickelli (R)	B	1	M	2	17.4, 17.7		2	+	2.0, 3.6
	B	1	F	1	16.2		1	+	5.2/–
Pomatorhinus erythrogenys (R)	B	1	M	1	57.0		1	+	5.5
	E	12	F	2	52.5, 56		2	+	10.0/3.0, 6.2/–
	B	4	—	1	54				
Pomatorhinus schisticeps (R)	B	1	M	2	34.6, 36.2	35.8 ± 3.2	2	+	4.0, 4.5
	E	12	M	1	39.5		1	–	3.4
	B	1	F	2	31.5, 35.2		2	+	8.0/1.5, 10.5/4.0
	B	4	F	1	39.6		1	+	7.2/2.5
	E	12	F	2	33, 40		2	–	(small), 8.1
	B	4	—	1	32.8				
Napothera epilepidota (R)	B	1	M	2	15.4, 19.0		2	–	(small), 1.8
	B	1	F	3	14.5, 15.4, 15.5		3	–	5.2, 3.7, 3.7
Pnoepyga pusilla (R)	B	2	F	1	12.9		1	–	5.5
	B	4	F	1	12.5		1	+	5.2/1.0
Stachyris rufifrons (R)	B	1	M	2	8.5, 8.7	8.1 ± 0.6	2	+	3.5, 7.0
	E	1	M	1	8.5		1	–	5.2
	B	1	F	1	7.5		1	+	6.1/1.5
	E	1	F	1	7.5		1	–	4.2
Stachyris chrysaea (R)	B	1	M	2	7.8*, 8.0	7.9 ± 0.2	2	+	1.0*(small, juv), 6.5
	B	4	M	2	7.8, 8.0		1	+	*(n.m.), 6.5
	E	12	M	2	7.5, 8.1		2	–	5.0, 1.5
	B	1	F	4	7.0, 7.4, 8.5, 11.0	8.1 ± 1.4	4	+	4.7/–, 4.0/1.5, 6.0/1.5, –/14.0,
	B	4	F	1	7.3		1	–	5.0
	E	12	F	2	7.6, 8.1		2	–	4.5, 5.0
Stachyris nigriceps (R)	B	1	M	5	14.9, 16.2, 16.5, 16.5, 17.0	15.8 ± 0.8	5	+	10.0, 10.5, 7.0, 8.5, 10.0
	B	4	M	4	14.6, 15.3*, 16.0*, 16.1		4	+	9.7, 1.3*, 1.3*, 9.8
	E	12	M	2	14.5, 16.0		2	+	2.5, 10.0
	B	1	F	6	13.1, 14.6, 14.8, 15.0, 16.0, 19.0	14.9 ± 1.8	6	+	5.0/–, 6.5/1.0, 5.5/–, 5.0/–, 4.5/–, 5.6/–
	B	4	F	2	11.9, 14.8		3	+	5.0/–, 5.9/1.8, 6.0/–
	E	12	F	3	14.1, 15.0, 15.7		2	+	50.1/–, –/4.0, (n.m.)
	E	12	—	2	15.8, 16.3				
Macronous gularis (R)	E	1	M	2	10.0, 10.7		2	+	5.2, 1.7
	E	1	F	1	9.5		1	–	3.6
Chrysomma sinense (R)	F	2	M	2	15.7, 16.5	17.7 ± 1.8	2	–	1.7, 1.9
	F	2	F	2	14.5, 15.6		2	–	4.0, 4.5
	E	12	F	2	17.7, 21.0		1	–	5.8, (n.m.)
	A	2	—	3	17.6, 18.5, 19.5				
	F	3	—	2	16.0, 16.4				
	K	9	—	6	17.0, 17.3, 17.6, 17.8, 18.5, 20.1				
	K	12	—	6	15.8, 16.0, 17.0, 17.6, 17.8, 20.1				
	D	12	—	2	18.7, 21.5				
Timalia pileata (R)	A	2	—	1	18.5	20.4 ± 1.2			
	K	9	—	1	21.5				
	D	12	—	3	20.4, 20.8, 21.0				
Garrulax erythrocephalus (R)	B	2	M	3	81.0, 83.5, 85.0	78.3 ± 5.6	3	–	3.2, 2.5, 3.5
	B	4	M	1	77		1	+	5.9
	E	12	M	1	76.5		1	–	(small)
	B	1	F	2	72.3, 75.0		2	–	8.0/1.0, 7.8/–
	E	12	F	2	70.0, 71.5		2	–	(small), 7.5/–
	E	12	—	4	78.5, 79.0, 79.5, 89.5				
Liocichla phoenicea (R)	B	1	M	1	47.0	47.7 ± 4.5	1	–	(small)
	B	4	M	1	47.0		1	+	10.4
	B	1	F	1	41.6		1	–	6.3
	B	2	F	1	47.9		1	–	5.1
	B	4	F	1	44.5		1	+	8.8/1.5
	B	4	—	1	55.0				
Leiothrix argentauris (R)	B	4	M	3	23.8, 24.8, 25.6	25.5 ± 1.0	3	+	11.5, 12.4, 8.5
	E	12	M	2	25.5, 26.0		2	–	(small), (small)
	B	4	F	2	26.4, 26.6		2	+	–/3.5, –/8.4
	E	12	F	2	23.8, 24.5		2	–	5.8, 7.5
	E	12	—	13	24.2, 24.3, 24.8, 25.3, 25.5, 25.6, 25.6, 25.7 26.2, 26.5, 26.7, 27.0, 27.5				
Pteruthius flaviscapis (R)	B	2	F	1	32.6		1	–	6.3
Actinodura ramsayi (R)	B	1	M	1	39.5	38.4 ± 2.0	1	+	6.4
	B	4	M	3	37.4, 37.9, 38.5		3	+	8.8, 9.6, 8.0
	B	4	F	1	35.5		1	–	8.0
	E	12	F	1	41.3		1	–	6.6

Species	Site	Month	Sex	n	Weights (g)	mean SD	n	Gonads activity	Gonads length (mm)
Minla cyanouroptera (R)	B	2	M	1	15.4		1	–	4.3
	B	4	M	1	17.3		1	+	5.7
	B	1	F	1	15.8		1	–	5.1
	B	2	F	1	15.8		1	+	5.0/1.0
Minla strigula (R)	E	12	M	5	19.0, 19.5, 20.5 21.6, 21.9	20.5 ± 1.3	5	–	(small), (small), 2.0, (small), 2.5
	E	12	F	7	18.5, 18.7, 18.7, 19.2, 19.2, 19.3, 20.3	19.1 ± 0.6	7	–	(small), 3.0, 5.0, (small), 6.0, (small), (small)
	E	5	—	8	19.0, 19.0, 19.2, 19.3, 20.5, 20.5, 20.8, 20.8	19.9 ± 0.8			
	E	12	—	10	18.2, 18.5, 18.7, 19.3, 19.3, 19.6, 19.8, 19.8, 19.9, 20.4	19.4 ± 0.7			
Alcippe castaneceps (R)	B	1	M	3	10.0, 10.3, 10.7	10.1 ± 0.6	3	+	3.5, 5.0, 2.5
	B	2	M	14	9.2, 9.2, 9.5, 9.5 9.6, 9.7, 9.9, 9.9, 10.4, 10.5, 10.5, 10.6 10.8, 11.2		14	+	2.5, 2.4, 6.5, 2.0, 3.0, 4.0, 6.0, 6.5, 6.4, 7.5, 6.5, 6.0, 2.5, 6.0
	B	4	M	1	9.4		1	+	5.8
	E	12	M	14	9.0, 9.2, 9.4, 9.5 9.6, 9.7, 10.0, 10.4 10.4, 10.6, 10.8, 10.8, 11.2, 11.2	10.1 ± 0.7	14	–	1.5, 1.5, 2.0, (small), 1.5, 2.5, 1.0, 2.0, (small), (small), 1.5, 2.0, 2.5, (small)
	B	1	F	1	11.5	9.8 ± 0.8	1	+	18.0/4.5
	B	2	F	6	8.9, 9.2, 9.5, 9.7, 9.8, 10.0		6	+	4.5/1.0, 5.0/1.0, 5.0/1.0, 4.7/1.3, 4.0/–, 6.0/1.7
	E	12	F	10	9.2, 9.2, 9.5, 9.7, 10.0, 10.2, 10.3, 10.4, 10.5, 10.5	10.0 ± 0.5	10	–	4.5, 4.0, (small), 5.0, 4.5, 4.5, (small), (small), (small)
	B	2	—	6	9.7, 9.7, 9.9, 10.0, 10.3, 10.7	10.0 ± 0.7			
	B	4	—	3	8.6, 10.5, 10.7				
	E	12	—	23	Range 8.3 to 10.5	9.5 ± 0.6			
Alcippe poioicephala (R)	E	1	F	1	15.4		1	–	5.9
Alcippe morrisonia (R)	B	1	M	9	13.2, 13.7, 13.9, 14.5, 14.5, 15.1, 15.2, 15.5, 15.5	14.7 ± 0.7	9	+	2.5, 3.0, (small), 3.0, 5.0, 2.0, 6.0, 5.5, 2.0
	B	2	M	5	13.9, 14.8, 14.8, 14.9, 15.6		5	+	6.0, 4.0, 6.0, 4.4, 5.1
	B	4	M	3	13.8, 14.0, 14.1		3	+	6.0, 4.0, 7.7
	E	12	M	6	13.0, 13.6, 14.0, 14.2, 14.2, 15.1	14.0 ± 0.7	6	–	2.2, (small), 1.5, 2.0, 3.0, 2.5
	B	1	F	3	13.5, 14.6, 15.7	14.5 ± 0.8	3	–	5.5, 5.5, 4.5
	B	2	F	4	13.9, 13.9, 14.8, 14.9		4	+	5.2/1.4, 5.3/1.4, 6.0/2.0, 6.5/1.0
	B	4	F	3	13.7, 14.6, 16.8		3	+	5.0/1.0, 6.0/1.8, 8.0/2.0
	E	12	F	4	12.5, 12.8, 14.3, 14.4		4	–	4.5, 4.5, 5.5, (small)
	B	1	—	20	Range 13.6 to 15.9	14.5 ± 0.7			
	B	4	—	10	Range 13.4 to 15.5	14.2 ± 0.5			
	E	12	—	30	Range 12.8 to 16.5	14.8 ± 0.7			
Heterophasia annectens (R)	B	4	M	1	24.2		1	+	5.7
	B	1	F	1	24.8		1	+	8.1/1.0
Heterophasia melanoleuca (R)	B	4	M	2	36.4, 36.4	33.3 ± 2.6	2	+	7.8, 9.0
	E	12	M	4	30.5, 31.1, 32.5, 33.0		4	–	1.8. 1.7, 2.6, 2.5
	B	1	F	1	30.1	31.7 ± 1.6	1	–	7.0
	B	4	F	1	31.2		1	+	9.5/2.0
	E	12	F	3	30.6, 32.8, 33.8		3	–	4.1, 6.3, 7.4
Yuhina flavicollis (R)	B	2	M	2	15.2, 16.8	15.0 ± 1.5	2	–	3.0, 4.4
	B	4	M	2	14.0, 14.6		2	+	6.3, 6.6
	B	2	F	1	14.9		1	+	5.8/1.3
	B	4	F	2	12.5, 16.7		2	+	–/1.7, –/7.5
Yuhina zantholeuca (R)	G	11	—	1	11.2				
Paradoxornis gularis (R)	B	1	—	1	27.7				
	B	4	M	1	26.1		1	+	7.8
	B	4	F	1	35.5		1	+	11.0
Brachypteryx leucophrys (R)	B	4	M	1	13.6		1	+	4.3
	B	1	F	1	15.2		1	–	4.5
	B	4	F	2	13.9, 15.5		2	+	6.6/1.6, 7.0/1.3
Brachypteryx montana (R)	E	4	M	1	20.8		1	+	7.0
	E	4	—	1	18.6				

Species	Site	Month	Sex	n	Weights (g)			Gonads	
						mean SD	n	activity	length (mm)
Erithacus calliope (M)	B	4	F	1	22.2	20.1 ± 1.4	1	–	4.5
	F	1	—	2	19.3, 20.5				
	F	2	—	5	18.8, 19.1, 19.5, 20.8, 21.1				
	F	3	—	3	18.8, 19.8, 21.3				
	D	12	—	3	18.0, 20.3, 23.4				
	K	12	—	3	18.8, 18.9, 21.0				
Erithacus svecicus (M)	F	1	M	2	14.9, 15.2		2	–	(both small)
	F	2	M	2	15.0, 15.7		2	–	(both small)
	L	5	M	1	17.8		1	–	1.5
	F	1	F	1	13.7		1	–	4.5
	L	5	F	2	14.6, 16.0		2	–	4.2, 4.7
	A	2	—	18	Range 13.6 to 18.0	15.2 ± 1.1			
	F	2	—	2	15.3, 15.4	15.5 ± 0.4			
	F	3	—	5	15.0, 15.2, 15.8, 15.8, 15.9				
	K	12	—	3	14.4, 15.3, 17.3				
Erithacus cyane (M)	E	1	M	1	15.0		1	–	(small)
	H	9	—	1	14.1				
Tarsiger cyanurus (M)	B	2	M	2	13.7, 14.2	13.5 ± 0.9	2	–	(both small)
	E	12	M	1	12.5		1	–	(small)
	B	2	F	2	13.2, 14.7		2	–	4.5, 4.0
	E	12	F	1	13.9		2	–	(both small)
	B	2	—	1	12.4				
Copsychus saularis (R)	H	4	—	2	35.1, 38.0				
	D	12	—	2	37.8, 40.0				
Cinclidium leucurum (R)	B	1	M	5	22.7, 25.5, 25.8, 26.5, 31.9	26.5 ± 3.4	5	–	2.0, (small), (small), 2.0, 1.5
	B	4	M	5	24.3, 24.4, 24.6, 25.4, 25.8	24.9 ± 0.7	5	+	4.5, 3.8, 5.5, 3.5, 6.4
	E	12	M	2	20.5, 27.5		2		(both small)
	E	12	—	1	25.5				
Saxicola torquata (M)	F	1	—	1	12.6	12.8 ± 0.5			
	F	2	—	2	12.2, 12.5				
	A	2	—	9	11.8, 12.2, 12.8, 12.8, 12.8, 13.0, 13.3, 13.5, 13.6				
Saxicola caprata (R)	A	2	—	2	13.0, 13.8				
Saxicola ferrea (R)	E	12	M	2	15.0, 15.7		2	–	2.0, (small)
Myiophoneus caeruleus (R)	E	12	F	1	134		1	–	5.5
	B	2	—	1	127				
Zoothera marginata (R)	E	12	F	1	81		1	–	7.5
Turdus obscurus (M)	B	4	M	1	55		1	–	2.8
	E	4	F	1	67		1		7.0/0.5
Gerygone sulphurea (R)	H	4	F	2	5.5, 5.8		2	+	3.3/0.5, 4.5/0.5
Seicercus burkii (M)	B	1	M	3	6.9, 6.9, 7.0	7.0 ± 0.5	3	–	(small), 1.0, 0.9
	B	4	M	1	7.6		1	–	2.0
	E	12	M	2	6.8, 7.0		2	–	(both small)
	B	4	F	2	6.3, 6.6		2	–	3.5, 2.1
	B	1	—	2	6.5, 8.0				
	E	12	—	4	6.2, 6.9, 7.2, 7.5				
Abroscopus superciliaris (R)	E	1	M	1	5.8		1	–	(small)
Phylloscopus subaffinis (M)	E	12	M	1	6.2		1	–	(small)
Phylloscopus fuscatus (M)	H	4	F	2	7.0, 8.8		2	–	3.0, 3.5
	F	1	—	3	7.1, 8.3, 9.4				
	A,F	2	—	18	Range 7.0 to 9.4	7.9 ± 0.6			
	H	4	—	1	10.8				
	D	12	—	2	7.5, 9.4				
	K	12	—	2	8.6, 9.4				
Phylloscopus armandii (M)	B	4	M	1	9.6		1	–	1.5
	E	12	M	1	9.4		1	–	(small)
	E	12	F	1	9.0		1	–	3.8
Phylloscopus schwarzi (M)	B	4	F	1	9.3		1	–	9.0
Phylloscopus pulcher (M)	B	2	M	7	6.3, 6.3, 6.3, 6.4 6.4, 6.4, 6.6	6.2 ± 0.4	7	–	0.5, 1.0, (small), 0.5, 0.5, (small), (small)
	E	12	M	2	5.5, 5.5		2		(both small)
	B	1	F	1	5.9		1	–	3.3
Phylloscopus inornatus (M)	E	12	M	3	4.8, 6.0, 6.0	5.5 ± 0.4	3	–	(all small)
	E	12	F	2	5.0, 5.4				
	E	12	—	1	5.6				
	B	1	—	1	5.5				
	D	12	—	3	5.3, 5.4, 5.5				

Species	Site	Month	Sex	n	Weights (g)		Gonads		
						mean SD	n	activity	length (mm)
Phylloscopus proregulus (M)	B	1	M	1	5.2	5.4 ± 0.3	1	–	(small)
	B	4	M	1	5.8		1	+	2.3
	B	1	F	1	5.6		1	–	3.0
	B	4	F	1	5.4				
	B	4	—	1	5.1				
Phylloscopus maculipennis (R)	E	5	M	3	4.3, 4.8, 4.9	4.7 ± 0.2			(n.m.)
	E	12	M	2	4.7, 4.8		2	–	2.0, 2.5
	E	12	F	1	4.6		1	–	4.0
	E	5	—	3	4.5, 4.6, 5.1				
	E	12	—	4	4.5, 4.8, 4.8, 4.8				
Phylloscopus borealis (M)	H	9	—	1	10.1				
Phylloscopus trochiloides (M)	E	12	F		7.3		1	–	(small)
Phylloscopus reguloides (M)	B	1	M	1	8.5		1	–	(small)
	B	2	—	1	6.9				
Phylloscopus davisoni (R)	B	1	M	2	6.3, 8.1	6.4 ± 0.7	2	+	3.0, 1.5
	B	4	M	1	6.3		1	+	3.1
	E	12	M	1	6.4		1	–	2.9
	B	4	F	1	6.8		1	–	3.3
	E	12	F	2	5.8, 6.5		2	–	5.7, 2.6
	B	1	—	1	6.2		1	–	
	B	4	—	1	5.7				
Acrocephalus aedon (M)	D	12	—	4	21.7, 22.6, 22.9, 23.2				
Acrocephalus arundinaceus (M)	F	2	M	3	23.9, 27.2, 29.5		2	–	1.5, (small), (small)
	L	5	M		28.5		1	–	2.3
	F	2	F	2	20.8, 21.1		2	–	6.5, 5.0
	H	4	F	1	20.1		1	–	5.5
	L	5	F	2	18.4, 22.2		2	–	5.6, 6.5
	A	2	—	2	23.9, 25.7				
	F	3	—	2	20.5, 21.9				
	H	4	—	2	23.0, 23.8				
	L	5	—	25	Range 18.3 to 31.3	23.6 ± 3.6			
	K	9	—	13	Range 21.6 to 30.7	25.2 ± 2.7			
	K	12	—	52	Range 20.4 to 28.3	24.0 ± 1.7			
Acrocephalus bistrigiceps (M)	F	1	M	3	7.8, 9.1, 9.4		3	–	(all small)
	F	2	M	9	6.9, 7.1, 7.2, 7.7, 7.9, 8.3, 8.3, 8.3 8.5	8.2 ± 0.9	9	–	1.0, 1.0, 1.0, 1.3, 1.0, 1.0, (small), (small), (small)
	L	5	M	1	7.3		1	–	1.0
	F	2	F	1	7.8		1	–	3.7
	L	5	F	1	7.6		1	–	4.8
	A	2	—	3	7.3, 8.0, 8.6				
	F	1	—	1	11.6				
	F	2	—	1	7.4				
	F	3	—	1	7.2				
	H	4	—	5	7.6, 8.0, 8.0, 8.5, 8.9				
	L	5	—	8	7.6, 8.1, 8.3, 8.3, 8.6, 8.8, 8.9, 9.2,				
	D	12	—	1	9.3				
	K	12	—	7	7.0, 7.2, 7.5, 8.1, 8.3, 8.6, 10.5				
Acrocephalus agricola (M)	L	5	F	1	7.9		1	–	2.8
	A	2	—	1	7.7				
Acrocephalus concinens (M)	F	2	M		8.9		1	–	2.0
	F	3	M	1	8.7		1	–	2.0
	F	2	F	1	7.9		1	–	3.2
	A	2	—	1	7.7				
Locustella certhiola (M)	F	1	M	1	12.1	14.0 ± 1.0	1	–	(small)
	F	2	M	1	13.9		1	–	2.0
	L	5	M	1	14.9		1	–	2.0
	F	1	F	1	13.9		1	–	4.0
	H	4	—	1	14.7				
	D	12	—	1	14.7				
Locustella lanceolata (M)	F	2	F	1	10.6		1	–	3.6
Megalurus palustris (R)	A	2	—	2	36.5, 39.0				
Orthotomus sutorius (R)	H	4	M	1	7.0	7.2 ± 0.7	1	+	3.7
	H	4	F	2	6.1, 6.8		2	+	4.5, 8.0/2.0
	H	4	—	5	6.7, 7.0, 7.9, 8.0, 8.8				
	H	9	—	4	6.6, 7.0, 7.1, 7.3				
	K	9	—	1	7.4				
Orthotomus cucullatus (R)	B	1	M	1	6.1		1	(+)	2.0
	B	1	F	1	5.8		1	–	3.5
	B	1	—	2	5.3, 5.4				

Species	Site	Month	Sex	n	Weights (g)			Gonads	
						mean SD	n	activity	length (mm)
Prinia hodgsonii (R)	E	12	M	—			1	–	1.5
	E	12	F	1	5.5		1	–	4.8
Prinia subflava (R)	H	4	M	3	9.6, 10.1, 10.1	8.8 ± 1.4	3	+	5.0, 5.0, 4.5
	F	2	F	1	7.5		1	–	4.0
	A	2	—	4	7.0, 7.0, 7.2, 7.7				
	K	9	—	4	9.2, 9.8, 10.0, 10.4				
Prinia flaviventris (R)	F	1	M	1	6.9	8.9 ± 1.5	1	+	2.5
	F	2	M	1	7.2		1	+	1.5
	A	1	—	4	9.2, 9.8, 10.4, 10.4				
Prinia atrogularis (R)	C	4	M	1	11.5	10.2 ± 1.4	1	–	0.5
	C	1	F	1	8.0		1	+	4.2
	C	4	F	3	10.0, 10.1, 11.2, —		4	+	6.2/2.2,5.0/1.2, 5.8/1.0,5.9/–
Cisticola exilis (R)	F	2	M	1	6.9		1	–	(small)
	F	2	—	1	6.3				
Tesia olivea (R)	C	1	M	1	7.9		1	–	1.0
	C	2	M	1	9.1		1	–	1.3
	E	12	—	1	7.5				
Cettia squameiceps (M)	E	12	M	1	8.8		1	–	(small)
Cettia fortipes (M)	C	4	F	1	7.3		1	–	3.8
Bradypterus thoracicus (M)	F	2	M	2	8.8, 10.5		1	–	(small), (small)
	A	2	—	1	9.3				
Muscicapa sibirica (M)	H	4	M	1	9.3		1	–	1.5
Ficedula parva (M)	E	12	M	1	9.0		1	–	(small)
	D	12	—	2	10.0, 10.8				
Ficedula strophiata (M)	B	2	F	1	12.4		1	–	4.7
	B	4	F	1	11.6		1	–	4.5
	E	12	F	1	11.0		1	–	(small)
Ficedula monileger (R)	B	1	M	7	10.5, 10.5, 10,5, 10.9, 11.1, 11.5, 12.1	11.0 ± 0.5	7	–	1.0, 1.5, 1.5, 2.0, 2.0, 2.0, 1.5
	B	4	M	4	10.7, 10.8, 11.1, 11.6		4	+	6.0, 6.0, 6.2, 6.2,
	B	1	F	4	10.5, 10.6, 10.6, 12.3	10.9 ± 0.8	4	–	5.0, 4.5, 4.0, 4.5
	B	4	F	1	10.7		1	+	4.0/0.5
	B	1	—	3	10.5, 10.9, 13.2				
Ficedula hyperythra (R)	E	12	M	2	8.3, 8.5	8.5 ± 0.2			
	B	2	M	4	8.3, 8.4, 8.6, 8.8		4	–	2.2, 1.4, 2.1, 1.1
	E	12	F	2	7.7, 8.2	8.1 ± 0.3	2	–	5.0, 3.5
	B	1	F	2	7.8, 8.0		2	–	3.5, 4.0
	B	2	F	1	8.3		1	–	5.5
	E	5	F	1	8.5				
Ficedula hodgsonii (M)	B	4	M	1	10.4		1	–	2.2
	B	1	F	1	10.2		1	–	3.0
	B	4	F	2	10.1, 10.7		2	–	3.9, 4.0
Ficedula westermanni (R)	B	4	M		8.2		1	+	5.0
Ficedula tricolor (M)	E	12	M	1	7.2		1	–	1.0
	E	12	F	1	7.5		1	–	2.6
	B	1	F	1	6.8		1	–	2.5
	B	4	F	1	8.4		1	–	4.0
Cyanoptila cyanomelana (M)	B	4	M	1	25		1	–	3.0
Niltava grandis (R)	B	1	M	4	34.0, 35.4, 35.8, 38.3	36.7 ± 1.8	4	–	2.5, 2.0, 2.4, 2.0
	B	2	M	1	36.2		1	–	3.0
	B	4	M	1	35.6		1	+	7.6
	B	2	F	1	40.3		1	+	9.0/0.5
	B	4	F	1	37.1		1	+	8.0/2.6
	E	12	F	1	38.0		1	–	7.0
	B	1	—	1	36.0				
Niltava macgrigoriae (R)	B	1	M	1	12.0		1	–	2.0
	E	12	M	1	11.6		1	–	(n.m.)
	B	4	F	1	11.0		1	+	7.0/1.4
Niltava sundara (M)	B	4	M	4	21.6, 21.8, 22.2, 22.5	22.7 ± 0.9	4	–	2.3, 2.5, 3.2, 4.3
	E	12	M	2	22.5, 22.7		2	–	(small), 1.5
	B	1	F	3	22.5, 23.0, 24.2		3	–	5.5, 4.5, 6.0
	E	12	F	1	21.7		1	–	4.5
	E	12	—	1	24.5				
Niltava vivida (M)	B	2	M	1	31		1	–	1.5
Cyornis rubeculoides glaucicomans (M)	B	4	—	1	14.7				
Cyornis banyumas (R)	B	1	M	2	14.6, 15.3	14.5 ± 1.0	2	–	3.0, 3.0
	B	2	M	1	12.8		1	–	2.3
	E	12	M	1	14.5				
	B	1	F	1	14.3		1	–	4.5

Species	Site	Month	Sex	n	Weights (g)			Gonads	
						mean SD	n	activity	length (mm)
Culcicicapa ceylonensis (R)	B	1	M	1	7.5		1	–	1.5
	B	4	M	1	6.9		1	+	5.3
	B	4	F	1	6.7		1	+	4.4
Rhipidura hypoxantha (R)	B	2	M	1	5.2		1	+	2.0
	E	12	F	1	4.4		1	–	2.7
Rhipidura albicollis	B	1	M	2	10.0, 11.5	10.2 ± 0.7	2	+	3.0, 3.0
	B	1	F	5	9.8, 9.8, 10.1, 10.1, 10.2		5	+	4.0/1.0, 4.5/–, 3.5/–, 5.5/1.0, 4.0/–
	B	4	F	1	10.4		1		4.0
	E	12	F	2	9.0, 9.2		1	–	(small), 4.5
	B	1	—	1	9.7				
	B	4	—	2	11.2, 11.2				
	E	12	—	4	10.0, 10.2, 10.5, 10.8				
Rhipidura javanica (R)	H	4	M	1	12.5	12.5 ± 0.9	1	+	6.4
	H	4	F	2	12.5, 13.2		2	+	4.5/1.5, 6.5/3.0
	H	4	—	2	13.1, 13.5				
	H	9	—	8	10.7, 11.7, 11.9, 12.0, 12.0, 12.2, 13.8, 13.9				
Hypothymis azurea (R)	H	9	—	1	10.9				
Terpsiphone atrocaudata (M)	H	4	M	2	18.7		1	–	2.5
Pachycephala cinerea (R)	H	4	M	2	17.1, 17.7		2	+	8.0, 8.0
Motacilla cinerea (M)	A	2	—	1	16.2				
Anthus hodgsoni (M)	E	12	M	2	21.0, 21.0	21.2 ± 1.7	2	–	1.5, 2.1
	E	12	F	1	21.6		1	–	5.5
	B	4	F	2	18.9, 23.7		2	–	5.0, 5.0
Anthus novaeseelandiae richardi (M)	C	1	—	1	29.6				
(R)	A	2	—	1	20.0				
Anthus roseatus (M)	A	2	—	3	17.5, 22.4, 23.2				
Lanius cristatus (M)	D	12	—	5	29.2, 30.3, 31.5, 31.5, 32.6	31.5 ± 1.7			
	K	9	—	1	34.1				
Lanius tigrinus (M)	H	9	—	1	26.9				
Lanius schach (R)	B	4	M	1	40.5		1	+	11.0
	K	9	—	1	46.1				
Sturnus contra (R)	H	11	—	1	76.5				
Aethopyga gouldiae (M)	B	1	M	1	6.9		1	–	1.0
	B	1	F	1	6.1		1	–	2.0
Aethopyga nipalensis (R)	E	4	M	1	6.3	6.0 ± 0.6	1	+	4.1
	E	12	M	3	6.0, 6.3, 6.5		3	–	(all small)
	E	12	F	1	5.4,		1	–	(n.m.)
	E	5	—	1	5.6				
Aethopyga saturata (R)	B	4	M	2	5.5, 5.7	5.3 ± 0.4	2	+	5.0, 5.0
	E	12	M	1	5.7		1	–	(small)
	B	1	F	2	4.6, 5.2		2	+	3.1/–, 5.5/1.0
	B	4	F	1	5.0		1	+	2.9/1.0
Arachnothera magna (R)	E	12	M	1	32.9		1	–	2.0
Zosterops erythopleura (M)	B	1	M	1	11.5		1	–	1.0
	C	4	M	2	9.9, 11.2		2	–	1.0, 1.4
Zosterops japonica (M)	C	1	M		10.2	9.4 ± 0.4	1	–	1.0
	E	12	M	2	9.4, 9.5		2	–	1.0, 1.3
	E	12	F	6	9.0, 9.1, 9.2, 9.3, 9.8, 9.8		6	–	4.5, (small), 5.0, 4.0, 5.0, (small)
	E	12	—	4	8.8, 9.3, 9.5, 9.8				
Zosterops palpebrosa (R)	B	4	M	1	7.2		1	+	3.7
Passer flaveolus (R)	H	4	—	1	16.6				
Ploceus manyar (R)	L	5	M	1	18.4		1	+	3.5
	L	5	M	1	16.4		1	–	1.5
Ploceus hypoxanthus (R)	F	1	M	1	18.6		1	–	(small)
Lonchura striata (R)	F	2	—	1	11.5				
Lonchura punctulata (R)	F	2	—	4	11.6, 12.0, 12.3, 12.3	12.6 ± 0.7			
	A	2	—	1	13.8				
	K	9	—	2	12.8, 12.9				
	D	12	—	1	13.0				
Emberiza fucata (M)	A	2	—	2	21.1, 22.5				
Emberiza aureola (M)	A	2	—	1	17.8				
Emberiza rutila (M)	B	2	M	2	15.2, 16.2		2	–	1.3, 1.2
	B	1	F	1	15.8		1	–	3.5

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The Rufous Sparrows of the Cape Verde Islands

by D. Summers-Smith

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The African Rufous Sparrows occur in a number of widely separated populations south of 18°N. They were first described by A. Smith (1836) as *Pyrgita Motitensis*, with the type locality subsequently indentified by Winterbottom (1966) as Motito in northern Cape Province, South Africa. (*Pyrgita* is now recognised as a synonym for *Passer* and has been suppressed.) Darwin (1841) collected a male from S. Tiago island in the Cape Verde Archipelago in 1832 during the voyage of the *Beagle;* this was later given the name *Pyrgita iagoensis* in 1837 by Gould (1837).

Subsequently *motitensis* and *iagoensis* were considered to belong to the same species, together with 4 other races of Rufous Sparrows: *cordofanicus* from Sudan, *insularis* from Socotra and Abd el Kuri islands, *rufocinctus* from Kenya and northern Tanzania and *shelleyi* from northeast Uganda to southern Ethiopia and Somalia, Fig. 1 (Mayr & Greenway 1962, Hall & Moreau 1970). As Smith's earlier (1836) publication was overlooked and his first description attributed to a later report (1848), the name *Passer iagoensis* was thought to have precedence; this error has ony been corrected comparatively recently (Clancey 1964) and the species is now described as *Passer motitensis* (A. Smith) 1836.

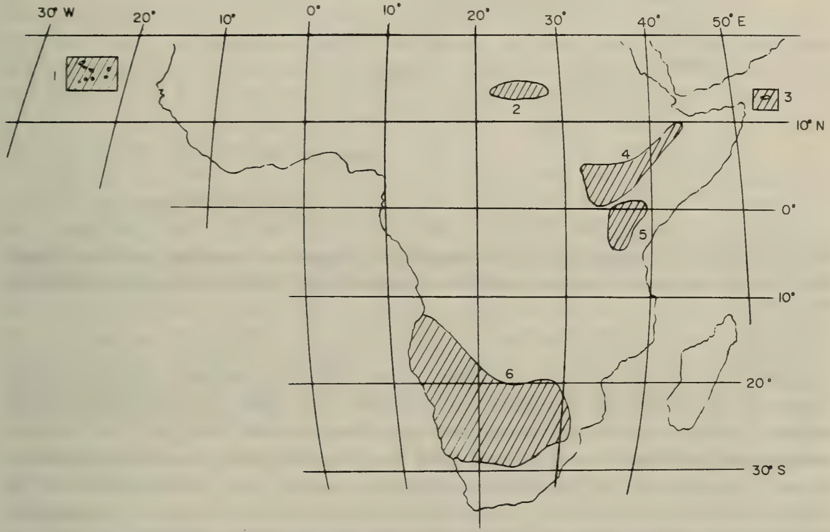

Fig. 1. Distribution of African Rufous Sparrows: 1 *iagoensis,* 2 *cordofanicus,* 3 *insularis,* 4 *shelleyi,* 5 *rufocinctus,* 6 *motitensis.*

A number of authorities have considered *iagoensis* to be separate from *motitensis:* van Someren (1922) considered *shelleyi* to be the closest of the African mainland Rufous Sparrows to *iagoensis,* but placed *shelleyi,* together with *rufocinctus, cordofanicus* and *motitensis,* as specifically distinct from *iagoensis;* Lynes (1926) gave specific status to all 6 populations; Grant & Mackworth-Praed (1944) recognised 4 species — *motitensis, insularis, rufocinctus* and *iagoensis* — *iagoensis* being separted largely because of its much finer bill; Bannerman (1948) considered *iagoensis* to be distinct from all the mainland African species and Macdonald (1957) was of the opinion that the southern African *motitensis* and *iagoensis* were separate species.

Observations I have made on the Rufous Sparrows in Kenya, southern Africa, where the bird is known as the Great Sparrow, (Summers-Smith 1983) and the Cape Verde Islands (to be published) have led me to the conclusion that the birds from the Cape Verde Archipelago are sufficiently differentiated from the others to justify specific separation on the following grounds.

Size

Winglength is the only size parameter on which sufficient data are available to make comparisons of the different populations. Winglength is not a particularly reliable characteristic because of the sexual difference, the effect of wear throughout the year and differences in measuring technique. However, by restricting the data to that obtained by one individual and birds of one sex these uncertainties are minimised. Lynes (1926) measured reasonable numbers of males from all the populations and his winglength ranges are given in Fig. 2. It will be seen that *iagoensis* is significantly smaller than all the other populations (the next largest has a median value 12.5% greater, the largest 26% greater) with no overlap; whereas the others do not differ to the same extent from each other.

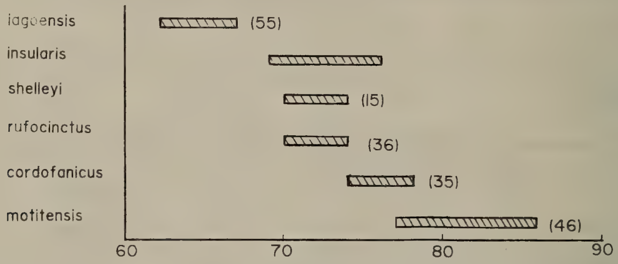

Fig. 2. Range of winglengths (mm) of male Rufous Sparrows according to Lynes (1926). Numbers of specimens measured are shown in parenthesis; that for *insularis* was not given by Lynes.

Plumage

Although all the populations show some common plumage characters with *iagoensis,* the latter has a number of features that differentiate it from all the others. The head in the male is blackish-grey merging into dark grey on the nape, whereas in the others the head and nape are mid-grey with no contrast between them. The black bib of the male in *iagoensis* is narrow and parallel-sided; in the others it spreads out sideways on the breast. *iagoensis* is highly sexually dimorphic with the female showing no chestnut in the plumage and no sign of a dark bib; in the others (with the exception of *insularis,* another island population) sexual dimorphism is much less distinct, the female having the same plumage pattern as the male but with the colours more muted, namely the bib and the streaks on the back grey instead of black, chestnut on back, rump and scapulars rather duller.

Habitat and Nest

All the Rufous Sparrows occupy an arid habitat, but the African mainland populations are dependent on trees (mainly acacia) in which they build open nests, though *rufocinctus* also makes use of tree holes and buildings for nesting, but only to a limited extent (Archer & Godman 1961, Britton 1980). On the other hand, the Cape Verde Island birds are predominantly hole nesters — in rocky cliffs, both natural and those formed by road cuttings, under rocks on open ground, chinks in stone walls and in the roofs and eaves of houses — even when trees are available. Alexander (1898), however, stated that on S. Tiago, in the Cape Verdes, "these sparrows breed in large numbers, many of the acacia trees in the plains being crammed with their untidy nest-structures of the previous season". None of the other writers on Cape Verde Island birds has remarked on tree nests and in October 1983 all the nests I found on S. Tiago, S. Vincente and Sto. Antão were in holes, including in such typical *Passer domesticus* sites as street lights. Alexander's comment refers to observations made before the breeding season of *iagoensis,* which does not begin until mid-September, and the description of the nests crammed in trees seems more appropriate to *Passer hispaniolensis*, a common tree nester in the archipelago. Whereas *motitensis* and *rufocinctus* stay much more in trees, *iagoensis* is predominantly a ground feeder.

Social behaviour

Observations I have made on Rufous Sparrows in Kenya and in southern Africa indicate that they are solitary breeders and this is confirmed for Kenya by Collias & Collias (1964), though small flocks may form outside the breeding season. In Botswana and the Transvaal, for example, pairs were spaced at least a kilometre apart, with a density of only one pair per 100-600 hectares in apparently suitable habitat (Summers-Smith 1983), and this is supported by less systematic observations in Kenya. In contrast, colonies of up to 10 pairs were found in the Cape Verdes with nests as close to each other as 2 metres. According to Bourne (1955) and Bannerman & Bannerman (1968), *iagoensis* forms large flocks outside the breeding season. Published information on these aspects is lacking for *cordofanicus, rufocinctus* and *insularis*.

While none of the above characteristics of its own would be sufficient for specific separation of the Cape Verde Island birds, the combination suggests that the latter has been isolated for some time, probably during the more pluvial conditions that occurred in western Africa in the Pleistocene. The attribution of specific status to allopatric populations must be a matter of judgement, but the differences quoted suggest that the process of differentiation in the Cape Verde Island population has proceeded far enough to warrant specific status. The name *Passer iagoensis* (Gould) is available for the species; the shorter trivial name Iago Sparrow proposed by Bannerman is to be preferred to the clumsy Cape Verde Island Rufous Sparrow.

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Notes on Philippine birds, 4. Some records of migrant visitors

by Jon Fjeldså

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Two Danish expeditions have brought home birds from the Philippines. The Danish Philippine Expedition or Galathea Expedition visited northern and central Mindanao from August 1951 to March 1952. Some 1700 bird skins were collected, and served as a basis for faunistic and systematic notes on several resident species (Salomonsen 1952, 1953).

The Noona Dan Expedition explored large parts of the Indo-Malayan area, and visited Palawan, the Sulus and Mindanao from July to December 1961. About 650 birds were collected there, and systematic remarks on some Palawan residents were given by Salomonsen (1961, 1962, 1977). No publications from these expeditions, however, commented upon migrant visitors (if we exclude Ferdinand's 1962 popular narrative). Notwithstanding duPont's (1971) sweeping statements of widespread occurrence in the Philippines, the published data on migrant visitors are in fact rather slim. It therefore appears relevant to record some migrant birds from these Danish collections.

Tufted duck *Aythya fuligula.* Known to winter locally in the Philippines south to Basilan near Mindanao, but not known from Mindanao itself (McGregor 1909, duPont & Rabor 1973). Two adult females (broad oviducts, large ovaries) were taken 17 February 1952 at Jabonga, Lake Mainit, Agusan, on the northern end of Mindanao.

Little ringed plover *Charadrius dubius.* Breeds (nominate subspecies) and winters (*curonicus*) in most parts of the Philippines. The species has been ringed in considerable numbers near the Verde Island Passage and in Palawan (McClure & Leelavit 1972). However, a female *curonicus* in its first winter plumage, taken 12 October 1961 in Dalawan Bay on Balabac, further to the southwest, is the first record of the species from this island.

Terek sandpiper *Tringa cinerea.* Winters all over the Indo-Australian area, and is know from some Philippine islands (McGregor 1909, McClure & Leelavit 1972, Baud 1978). One second-year male, taken 20 January 1952 at Tubay, Cabadbaran, Agusan, is the first record from Mindanao.

White-winged black tern *Chlidonias leucopterus.* An uncommon migrant visitor to the area, although a flock of more than 500 is known from the Moluccas (McKean & Estberg 1980). There are records from several Philippine islands

(McGregor 1909, 1918, Rabor 1952, Temme 1973, Baud 1978, duPont & Rabor 1973), but one specimen in full postjuvenal moult, taken 4 October 1961 in Dalawan Bay, is the first record from Balabac.

COMMON TERN *Sterna hirundo longipennis.* May occur all through the Indo-Malayan Archipelago but is known from rather few places in the Philippines (McGregor 1909, 1921, Hachisuka 1941, McClure & Leelavit 1972). Three males and one female collected 20 January 1952 at Tubay, Cabadbaran, Agusan, represent the second record from Mindanao. Two first-year birds taken 25 November on Bongao Island, Tawitawi, represent the first record from the Sulus.

ORIENTAL CUCKOO *Cuculus saturatus horsfieldi.* A widespread visitor all over the Indo-Australian area, and recorded from several Philippine islands. One juvenile bird (lacking white nape spot, but showing distinct, white edges to all remiges) taken 21 November 1961 in Lapid Lapid, appears to represent the first record from the Sulus.

LANCEOLATED WARBLER *Locustella lanceolata.* Appears in large numbers in suitable habitats on Luzon (McClure & Leelavit 1972), and is known also from Bohol, Calayan and Palawan (McGregor 1909, Manuel & Gilliard 1952, Rand & Rabor 1960). One male was taken 16 November 1951 in grassland at Kaatoan, Katanglad Volcano (1250 m) near Bukidnon on Mindanao. Judging from its minute testes and the correspondence of growth bars on all rectrices, it is juvenile, but the fresh body plumage is adult-like and clearly different from that of a Siberian fledgling also examined. This suggests a post-juvenal moult, as reported in 2 congeneric species (Ginn & Melville 1983).

GREY-SPOTTED FLYCATCHER *Muscicapa griseisticta.* Known from most parts of the Philippines. However, one male taken 12 October 1961 in Indalawan Bay, Balabac, represents the first record from this island. Judging from the fresh plumage and pale edges to the wing-coverts it may be a juvenile.

Acknowledgements. This is No. 147 of the Noona Dan Expedition papers. I want to thank Mr. E. C. Dickinson for having pointed out records worth publishing and for having provided valuable distribution data.

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The West African mainland forest dwelling population of *Batis*; a new species

by Walter J. Lawson

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During the course of a study of the evolutionary history of the populations of the flycatcher genus *Batis*, consideration was given to the populations of West Africa and the island of Fernando Po, currently known as *Batis poensis* Alexander. It became apparent that the existence on Fernando Po of forest dwelling populations of *Batis* which were indistinguishable at the subspecific level from those in the forests of West Africa was anomalous, considering the changes which had occurred in other populations of forest-dwelling *Batis* in Africa which had been isolated from one another for much the same period of time that the island of Fernando Po has been separated from mainland Africa, namely about 10,000 years. Although Fernando Po has only one species endemic to the island, namely *Speirops brunnea,* approximately one quarter of the species on the island are considered to differ subspecifically from the populations of the mainland. There has been no suggestion in the litarature that the 2 bodies of populations of *Batis poensis,* on Fernando Po and mainland Africa, were anything other than identical, which is not surprising considering the paucity of collected material and the even greater paucity of recently collected, neatly prepared, material. Most of the material existing in museums was collected in the first 2-3 decades of this century and is of poor quality, and not suitable for discerning colouration differences.

However, as a result of an expedition to West Africa and Fernando Po in 1963, Professor Eisentraut of the Zoologisches Museum Alexander Koenig, Bonn collected 11 specimens of *B. poensis* from Fernando Po. All are neatly prepared specimens. In 1977 Alec Forbes-Watson collected some equally excellent specimens of *B. poensis* at Mt. Nimba, Liberia, which are now lodged in the British Museum (Nat. Hist.) (BMNH). Through the kind offices of the Queensland Museum, Brisbane, I was able to assemble the Bonn and British Museum specimens simultaneously. Although for some time I had been aware of size differences between the island and mainland populations, it was only when the well prepared specimens were examined simultaneously that the considerable colour differences became apparent.

There is no doubt that the island and mainland populations are distinct, both in size and colour. There is also little doubt that there is no gene flow between the populations and that this has been the case for many thousands of years. Whether the populations should be considered specifically or subspecifically distinct is a matter for debate and differences of opinion. It is here contended that the colouration differences between them are sufficiently marked for them to be considered distinct species.

As the name *Batis poensis* Alexander was applied to the Fernando Po populations, a new name is required for the mainland populations. The name *Batis occultus* is proposed. The name refers to the species rarity in West Africa and its apparent secretiveness, since it is rarely observed.

A definition of the 2 species follows.

Batis poensis Alexander

Bull. Brit. Orn. Cl. 13: 34, 1903: Bakaki, Fernando Po.

Description. Males are distinguishable from *B. occultus* in having the mantle and head top a glossy blue black; the supra loral spot is white but very small with no supercilium present. The white edge to the tertials is narrow, as is the white edge to the outer tail feathers. The black breast band is broader than in *B. occultus.*

Females differ from *B. occultus* in having a diffuse breast band, not clearly defined, which extends in a suffused form onto the upper flanks and upper abdomen.

Distribution. Occurs only on the island of Fernando Po.

Material examined. 13 specimens, all from the island of Fernando Po.

Measurements. 9♂♂: wing 50.0-57.0 (53.39), tail 29.0-32.0 (30.33), culmen 15.0-17.0 (15.67) mm. 4♀♀: wing 51.5-54.0 (52.38), tail 29.0-33.0 (31.12), culmen 14.0-15.5 (15.00) mm.

Batis occultus sp. nov.

Description. Males differ from *B. poensis* in having the head top and mantle blue black with a considerable admixture of grey and white, giving it a quite different appearance. The supra loral spot is large and white and there is a conspicuous white supercilium. The white edge to the tertials is broad, as is the white edge to the outer tail feathers. The breast band is narrower.

Females are similar in colouration to those of *B. poensis* with the exception of the breast band which is similar in colour, a dark vinous chestnut, but is clearly defined and delineated, with white flanks and no suffusion onto the upper abdomen.

Distribution. From Liberia and the Ivory Coast to Nigeria and southern Cameroun.

Type. Male specimen collected 25 July 1967 at 550 m by Alec Forbes-Watson at Grassfield, Mt. Nimba, Liberia (7°30′N, 8°35′W). In the collection of the British Museum (Tring), register number 1977.20.2078.

Measurements of Type. Wing 51.0, tail 31.0, culmen 13.5 mm, weight 8.8 gm.

Material examined. 13 specimens from:— Kpapekau, Ivory Coast; Bitye, River Ja, Cameroun; Iju waterworks, Lagos, Nigeria; Sekondi, Ghana; Grassfield, Mt. Nimba, Liberia; and Gambari, 16 miles south of Ibadan, Nigeria.

Measurements. 9♂♂: wing 47.0-52.0 (49.83), tail 27.0-31.5 (30.11), culmen

13.5-15.5 (14.33) mm. 4♀♀: wing 48.0-51.0 (49.50), tail 28.5-31.0 (29.83), culmen 13.0-15.0 (14.50) mm.

Remarks. Batis occultus is the second species of *Batis* to have been defined in recent years, the other being *Batis ituriensis* Chapin, which was distinguished from *Batis minima* Verreaux by C. Erard in his paper 'Affinities de *Batis minima* (J. et E. Verreaux) et de *B. ituriensis* Chapin' (*Oiseau* 45 (3): 235-240, 1975).

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The nest and eggs of the Black-and-Rufous Swallow *Hirundo nigrorufa*

by P. St. J. Bowen and J. F. R. Colebrook-Robjent

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Benson (1956:603) was the first to describe the nest of *Hirundo nigrorufa*. It was "an open cup (adhering to the side of a pit)" at Kasama, Northern Province, Zambia and when found on 10 November contained 3 almost featherless chicks. Lippens & Wille (1976) record a nest from Zaire: "Le 19 juillet 1959, en saison sèche, nous avons trouvé un nid près de Gungu, au Kwilu; il contenait trois oeufs brun-tacheté . . .". The inadequacy of this description of a previously undescribed egg justifies this note. For a general account of the species see Bowen (1983).

P. St. J. B. found 22 nests of *H. nigrorufa* in the Mwinilunga District, North-Western Province, Zambia, between 1977 and 1980. The earliest laying date was 1 July, when a nest contained its first egg, completed clutches being found from early August through to mid-October. All the nests were attached, under a slight overhang, to almost bare vertical earth banks of perennial rivers or streams flowing through dambos (= open grassland along a drainage line) or along grassy valleys, and all were well hidden. The nests were constructed of mud (not as pellets) and rootlets, the lining consisting of a little grass with sometimes a few feathers. The external dimensions of one nest were 80 mm (width) and 55 mm (front lip to back). Internally, the cup measured 60 mm in diameter at its widest and 45 mm in depth. When known to be complete, clutches have been of 3 eggs.

The eggs are blunt to rather long oval and somewhat glossy. The ground varies from white to cream and, for a swallow, the eggs are rather well marked with (in different clutches) peppering, speckling or spotting of warm brown, dark brown or chocolate brown, over ashey-grey or lilac-grey. The markings tend to be concentrated around the blunt end, but the distribution is more liberal on some eggs than others. The average size of 18 eggs from Mwinilunga was 17.6 x 12.9 mm (max: 19.1 x 13.2 and 17.4 x 13.4; min: 16.5 x 12.5 and 17.4 x 12.3 mm). The average weight of 9 fresh eggs was 1.48 g. As predictable, the eggs of *H. nigrorufa* are closely similar to those of the Blue Swallow *H. atrocaerulea*, with which it forms a superspecies (Hall & Moreau 1970). Two eggs of *H. atrocaerulea* (survivors of a deserted C/3) collected by Mrs. Margaret Snell at Inyanga, Zimbabwe on

19 November 1979, measuring 17.7 x 13.2 and 17.7 x 13.0 mm, were somewhat glossy white, speckled and spotted medium-brown over ashey-grey, thus showing more white ground than did any of the 18 eggs of *H. nigrorufa*.

Acknowledgements. We thank the late C. W. Benson for drawing our attention to his paper and that of Lippens & Wille (1976), and D. R. Aspinwall for a translation of the latter and for improving this note. J. C.-R. is grateful to Mrs. Margaret Snell for the comparative material of the deserted eggs of the Blue Swallow which were prepared as cabinet specimens by R. D. Jeffery.

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Lanius excubitor "jebelmarrae"

by G. Nikolaus

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During 5 weeks of fieldwork in Sudan on and around Jebel Marra (20 June-28 July 1983) it was surprising not to meet with *Lanius excubitor jebelmarrae,* which was described by Lynes (1923:94) as an endemic subspecies from Jebel Marra (13°00′N, 24°25′E, 3024 m), Darfur, Sudan. Lynes found it common and resident in the Jebel Marra highlands and in March the birds were becoming sexually active. He collected 4 skins between November and 21 March (Lynes 1925:72) which differed from common "lowland Grey Shrikes" *L.e. leucopygos* in having a rather purer grey mantle and a rump grey like that of the mantle instead of white. Cave & Macdonald (1955) state that *jebelmarrae* is similar to *L.e. elegans* in having a grey rump, but is rather smaller.

Because of the absence of these birds during summer, the 4 skins in the British Museum (Nat. Hist.) were compared with other *L. excubitor* material from Africa. They were identical with *L.e. aucheri* from East Africa in colouration and state of moult. This means that *L.e. jebelmarrae* is synonymous with *L.e. aucheri* and that the birds found by Lynes were a wintering population on Jebel Marra. *L.e. aucheri* is a common winter visitor to northeast Sudan, especially the Red Sea Hills, from late September to March. The Jebel Marra birds would be part of this wintering population, showing here a preference for higher altitudes than the lowland subspecies *L.e. leucopygos.*

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Bird notes from the Cape Verde Islands

by D. Summers-Smith

Received 11 May 1984

Ornithological reports from the Cape Verdes are not frequent, though there have been regular visits since Darwin (1841) first made a small collection there in 1832. There have been, however, no published records since Bannerman & Bannerman (1968) and de Naurois (1965, 1969). I visited 4 of the islands (S. Vicente, S. Tiago, Sto. Antão and Fogo) in October 1983 with the particular objective of studying the sparrows. The following notes refer to new records or highlight changes in the avifauna that have occurred since the 1960s. Two species appear to have died out, probably a consequence of the drought conditions that have persisted for the last 17 years.

Purple heron *Ardea purpurea.* A breeding colony was found by Bourne (1955) on S. Tiago in the S. Domingos valley in 1951; in 1966 the Bannermans estimated more than 60 nests. In 1983, I failed to find any birds and there was no sign of any nests in the trees where the heronry had been located. Enquiries of the local people confirmed that the bird had disappeared "about 10 years ago".

Cattle egret *Bubulcus ibis.* The Bannermans found 2 nests in the Purple Heron colony on S. Tiago and, in addition, found large flocks of the birds on S. Tiago, S. Vicente and Sao Antão. Despite extensive searching on these islands I failed to see anything of this conspicuous bird and it must be assumed to have died out.

Kite *Milvus* sp. The kites in the Cape Verdes were described by Hartert (1914) as a sub-species of the Red Kite, *Milvus milvus fascienda,* intermediate in character between the Red *Kite M. milvus* and Black Kite *M. migrans.* De Naurois considered, on the basis of collected specimens, that by the 1960s this race had died out and had been replaced by the Black Kite and the Bannermans reported Black Kites as common on both S. Vicente and S. Tiago. I saw one definite Black Kite on S. Vicente near Mindelo and 2 over a small village near Formoso on the east coast of S. Tiago. In contrast, the numerous birds that were seen quartering the hillsides at the foot of the S. Domingos valley were not only far from human habitations, but those that came close enough to give good views showed the characteristics of *milvus,* with creamy-white crown, pale underparts and a noticeably forked tail. Clearly the kite populations on the Cape Verdes deserve more detailed attention.

Kentish plover *Charadrius alexandrinus.* In addition to being the commonest wader, a pair with 2 small young less than a week old, was seen at Pedro Badejos, S. Tiago, on 21 October.

Bar-tailed godwit *Limosa lapponica.* This species does not appear to have been recorded previously. One was seen at Mindelo Bay, S. Vicente, on 6 and 8 October.

Turtle dove *Streptopelia turtur.* One seen in Mindelo, S. Vicente, on 6 October. The species appears to have been seldom recorded in the archipelago.

Spanish sparrow *Passer hispaniolensis.* Large numbers were found on S. Vicente in 1951 (Bourne 1955), though unreported there by previous observers. In

1983, despite careful searching, I found no Spanish Sparrows, and the only evidence of their presence was a hybrid male Spanish x House Sparrow *Passer hispaniolensis* x *domesticus* on the outskirts of Mindelo on 6 October. It is surprising that 3 sparrows of the genus *Passer* could co-exist on this small, arid island (the Iago Sparrow *Passer iagoensis* is also present) and already in the 1960s de Naurois was reporting hybrids as well as pure *hispaniolensis*. This is the second island on which the Spanish Sparrow has died out: according to Bourne (1955) it died out on Brava "in the droughts of the 1940's".

Additional species were recorded (Table 1); the actual numbers are given when less than 5 individuals were seen.

Table 1. Species recorded in the Cape Verde Islands not mentioned in the text.

	S. Tiago	S. Vicente	Sto. Antão	Fogo
Puffinus diomedea	√		2	
Oceanodroma castro			1	
Sula leucogaster	√		√	
Ardea cinerea	2			
Egretta garzetta	1	2		2
Pandion haliaetus		2		
Neophron percnopterus	√	√	√	1
Falco tinnunculus	√	√	√	√
Coturnix coturnix	1			
Charadrius hiaticula	√	√		
Pluvialis squatarola		3		
Arenaria interpres	√	√	√	
Calidris minuta		1		
Calidris alba		√		
Tringa totanus		1		
Tringa hypoleucos	√			
Tringa ochropus	1			
Numenius phaeopus	√	√		
Cursorius cursor	√			
Larus ridibundus		1		
Columba livia	√	√	√	√
Apus sp*	√	√	√	√
Halcyon leucocephalus	√	√		√
Eremopterix nigriceps	√			√
Ammomanes cincturus	√			
Hirundo rustica	√	√		√
Acrocephalus brevipennis	3			
Sylvia atricapilla	√			√
Sylvia conspicillata	√	√		√
Passer hispaniolensis	√			√
Passer iagoensis	√	√	√	
Estrilda astrild	√			
Corvus ruficollis	√	√	√	√

* No decision appears to have been reached on the specific identity of the swifts inhabiting the Cape Verdes.

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Notes on Philippine birds, 5.
The re-identification of an *Emberiza* specimen from the island of Catanduanes

by Robert S. Kennedy

Received 2 June 1894

During his short trip to the island of Catanduanes off the east coast of Luzon in the Philippines in 1894, John Whitehead collected an immature male specimen of an *Emberiza* species on 24 September that was later identified and published as *E.*

spodocephala by Ogilvie Grant (1895) and Whitehead (1899). McGregor (1910), Delacour & Mayr (1946), and duPont (1971) continued to list this specimen as the only record for the species from the Philippines.

At the American Museum of Natural History (AMNH), I located Whitehead's specimen (AMNH 715921) not with *E. spodocephala* as expected, but with *E. aureola*. After careful comparison with material of both *E. spodocephala* and *E. aureola* of appropriate plumage, I concluded that Whitehead's specimen was indeed *E. aureola* and a representative of the nominate race *E.a. aureola*.

Bruce (1980) was the first to list *E. aureola* from the Philippines, but he did not mention why he included it.

As there are no other specimens of *E. spodocephala* from the Philippines, this species must be deleted from the Philippine list and *E.a. aureola* must be added. Since Severinghaus & Blackshaw (1976) consider *E. spodocephala* a common migrant to Taiwan, it may indeed one day appear in the Philippines.

Acknowledgements. I am grateful to E. C. Dickinson who requested I check the collection date of Whitehead's specimen, to K. C. Parkes who confirmed my identification of the specimen, and to the Frank M. Chapman Memorial Fund for financial assistance that allowed me to visit the AMNH.

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Occurrence and ecological segregation of races of Black Kite *Milvus migrans* in northern Tanzania

by D. N. Manyanza

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The Black Kite *Milvus migrans* has 7 races, of which 3 occur in Africa (Brown *et al.* 1982), namely *M.m. parasitus* (Daudin), *M.m. aegyptius* (Gmelin) and *M.m. migrans* (Boddaert), of which the first 2 have yellow bills as opposed to the black bill of the *migrans* race. Also the head of *migrans* is markedly whiter than that of the other 2 races (Brown *et al.* 1982). The African races generally occupy different geographical areas but where overlap occurs they may intergrade (Mackworth-Praed & Grant 1962).

However, *M.m. migrans,* which breeds in the Palaearctic and northwest Africa but migrates south in winter, occurs in the presence of local *M.m. parasitus* in

West Africa (Moreau 1972); but the 2 races remain segregated, *parasitus* scavenging in towns, *migrans* avoiding feeding in close association with human habitation. Moreau described *migrans* as not being "anthropophile". Observations reported here indicate that such ecological segregation is not an isolated event.

Between October 1983 and March 1984 a population of *M.m. migrans* and *M.m. parasitus* was observed in Arusha, northern Tanzania, East Africa. A large number of *parasitus* was first observed in Arusha town, landing on trees and buildings. They were seen feeding on garbage. Later, 2 roosts, one of *migrans* and another of *parasitus*, were discovered in the town, c. 1 km apart, both in tall trees.

The roost for *M.m. migrans* was in eucalyptus trees and comprised c. 600 individuals. Although essentially a night roost, c. 200 were seen at the roost during the day. When at the roost the birds occupied the top and outer parts of the trees, allowing a clear view around them. All were *migrans* except for less than 10 individuals of *parasitus* also observed in the roost.

The local *M.m. parasitus* roosted in a jambalum tree *Syzygium cumini*, c. 300 of them, with which 7-15 *migrans* also were counted. Unlike *migrans*, *parasitus* was not observed to occupy their roost during the day; only 2-3 would land on the jambalum tree in the day, but these visits to the roost were brief and appeared to be associated with foraging.

The 2 races had different roosting habits. Both flocked immediately before they went to roost in the evening, but *migrans* roosted earlier than *parasitus* by about half an hour (at 18:30). It is possible that flocking *migrans* while *en route* to their roost attracted a few *parasitus* individuals to fly and roost with them. Similarly the flocking *parasitus* going to roost later may have attracted late-coming members of *migrans* to join their roost.

The 2 races also fed in different areas. *M.m. parasitus* was commonly seen in town foraging on garbage throughout the day, while *migrans* foraged away from town, many being seen foraging on cultivated and open land c. 12 km away from the town, near the Tropical Pesticides Research Institute. No *parasitus* were observed in this area. The food of these *migrans* was not established, but the area is known to harbour rats, moles and arthropods.

These observations record ecological segregation between *M.m. migrans* and *M.m. parasitus* in northern Tanzania. That the observation in east Africa is similar to that recorded by Moreau in west Africa suggests that ecological isolation between the 2 races may be normal.

Acknowledgement. I am grateful to Dr. C. J. Feare of MAFF Worplesdon Laboratory, UK, for making valuable corrections to the draft manuscript and providing more up-to-date information.

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Range extensions and rare records of birds in Ecuador

by Arnoud B. van den Berg and Cecilia A. W. Bosman

Received 21 May 1984

From December 1980 to March 1981 we were recording bird-sounds in tropical and upper tropical zone forests of Ecuador. Several species encountered represent extensions of known ranges. Most records were documented by sound-recordings, which are deposited in the collection of the Library of Natural Sounds (LNS), Laboratory of Ornithology, Cornell University, Ithaca, New York. In this paper we report these records, using Meyer de Schauensee (1966, 1982) as the standard reference on distribution, taxonomy and nomenclature. The records are from the following localities:–

Alto Tambo (0°56′N, 78°32′W), Prov. Esmeraldas, W. Ecuador, alt. 300–600 m, tropical to upper tropical zone forest along the railway between Ibarra and San Lorenzo, west of the village of Lita, situated on the borders of Prov. Carchi, Esmeraldas and Imbabura.

Limoncocha (0°24′S, 76°38′W), Prov. Napo, E. Ecuador, alt. 300 m, tropical zone forest along Río Napo, c. 15 km south of the town of Coca. (For more information, see Pearson 1972, 1975, Tallman *et al.* 1977.)

Tinalandia (0°33′S, 78°55′W), Prov. Pichincha, W. Ecuador, alt. 800–1400 m, upper tropical zone forest-patches surrounded by agricultural land on the hill side along Río Toachi, c. 50 km east along main road from the town of Santo Domingo de los Colorados. (For more information, see Butler 1979; we observed 23 additional species here.)

Río Palenque (0°30′S, 79°22′W), Prov. Pichincha, W. Ecuador, alt. 200 m, remnant tropical zone forest (1–2 km²) surrounded by agricultural land, c. 65 km north of the town of Quevedo. (For more information, see Leck 1979, Leck *et al.* 1980.)

GREAT GREEN MACAW *Ara ambigua*.

On 30 and 31 December, at Alto Tambo, sound-recordings (LNS 28641) were obtained of 3 birds calling while flying around and foraging atop a tree. This species is known in Colombia south to the headwaters of the Río Atrato and in southwestern Ecuador in Prov. Guayas (Meyer de Schauensee 1982: 98), and this record, in extending the known range, decreases the gap between the 2 known populations. R. S. Ridgely tells us there are early 20th century specimens (details unpublished) from Prov. Esmeraldas in the American Museum of Natural History, New York. Moreover, there is a recent specimen from this area collected by local people (*fide* N. Krabbe).

SCALED ANTPITTA *Grallaria guatimalensis*.

On 23 February, at Limoncocha, a sound-recording (LNS 28584) was obtained of this species' song. This is the first record of this montane species for this locality (cf. Tallman *et al.* 1977), though it is known from higher elevations in upper tropical and subtropical zone forests (Meyer de Schauensee 1982: 254). On 28 February this antpitta was also sound-recorded at Tinalandia (LNS 28497), where it was more to be expected.

SCALED FRUITEATER *Ampelioides tschudii*.

On 5 March, at Tinalandia, with Michael Fogden we observed a male and sound-recorded its call (LNS 28531). The first record of this species for western

Ecuador was in October 1979 (Ridgely 1980), and further records were made in August 1980 (R. S. Ridgely).

GREATER MANAKIN *Schiffornis major*.

On 19 and 21 February, at Limoncocha, a sound-recording was obtained of this manakin's rich and elaborate song (LNS 28550) from a bird in medium stratum of thick riverside forest. There is only one previous record for Ecuador, a sight-record in September 1976, c. 150 km to the east along the Río Napo at Jatuncocha close to the Peruvian frontier (Ridgely 1980).

WHITE-NECKED THRUSH *Turdus albicollis*.

On 10 March, a single White-necked Thrush was seen and its song and calls sound-recorded (LNS 28478) at Río Palenque, which appears to be the southern-most record of this species in western Ecuador, and the first record for Prov. Pichincha (R. S. Ridgely). It was not listed for this locality in Leck *et al.* (1980).

BLACK-AND-WHITE WARBLER *Mniotilta varia*.

On 30 December, at Alto Tambo, a single female was seen foraging on tree branches. There is an earlier report of this warbler in western Ecuador from Río Palenque in April 1976 (Leck *et al.* 1980), but the species is not mentioned for western Ecuador in Meyer de Schauensee (1982: 362). Its presence was to be expected as there is a sight-record for Prov. Lambayeque, northwestern Peru, dated 30 August 1978 (Schulenberg & Parker 1981).

EMERALD TANAGER *Tangara florida*.

On 29 and 30 December, at Alto Tambo, 2 were identified when loosely associating with Rufous-throated Tanagers *T. rufigula* and a few Silver-throated Tanagers *T. icterocephala*. The species has not been reported previously from Prov. Esmeraldas, the first record for Ecuador being a sight-record in November 1978 in Prov. Pichincha (Ridgely 1980).

A number of species, Little Cuckoo *Piaya minuta*, Moustached Wren *Thryothorus genibarbis*, Long-billed Gnatwren *Ramphocaenus melanurus*, Scarlet-rumped Cacique *Cacicus uropygialis* and Canada Warbler *Wilsonia canadensis*, which we observed and sound-recorded in March at Río Palenque, were already listed by Leck *et al.* (1980) for this locality and are well-known in western Ecuador (R. S. Ridgely). They are, however, not mentioned for western Ecuador in Meyer de Schauensee (1982).

Acknowledgements. We are pleased to thank Theodore A. Parker III, Dr. J. V. Remsen and Dr. Robert S. Ridgely, who were kind enough to read and comment upon an early version of the typescript. We also thank members of staff of the Library of Natural Sounds, Ithaca, New York, and Louisiana State University, Baton Rouge, Louisiana, for their assistance and support.

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New and rarely recorded species from the Tristan da Cunha group

by M. W. Fraser

Received 28 May 1984

Details are given here of observations of uncommon or previously unrecorded birds at Inaccessible Island in the Tristan da Cunha group (37°15'S, 12°30'W) made by the Denstone Expedition between October 1982 and February 1983. The first 2 are additional to the list given by Fraser (1983).

DOVE PRION *Pachyptila desolata*

The remains of 2 Dove Prions (one complete ossified skull and one lower mandible, kindly indentified by G. Avery of the South African Museum) were found in fresh pellets of Subantarctic Skuas *Catharacta skua* on Blenden Hall beach, one in October and one in November. Since it is unlikely that these skuas fly very far to forage during the breeding season, abundant prey being available locally, the implication is that the Dove Prions were taken on or near the island and constitute a valid record. No further evidence for the species was obtained throughout the period.

The taxonomy and nomenclature of the genus *Pachyptila* is not fully agreed (Harrison 1983). Cox (1980) considers *P. desolata* to be a subspecies of the Broad-billed Prion *P. vittata*, but Harper (1982) accords *P. desolata* specific status. The only prion known previously from the group is *P. vittata vittata*, which breeds on all 3 islands—Tristan, Inaccessible and Nightingale (Hagen 1952, Wace & Holdgate 1976)—so that the specimens described here form an addition to the islands' avifauna.

GREY-BACKED STORM PETREL *Garrodia nereis*

On the night of 15 October 2 Grey-backed Storm Petrels, together with 43 White-faced Storm Petrels *Pelagodroma marina*, were found on board M.V. *S.A. Agulhas* anchored off Salt Beach, on the northern coast of Inaccessible. These were the only observations made of this storm petrel during the time spent on the island.

A previous suggestion that the species might occur in the Tristan group was made by Mathews & Gordon (1932), and Mathews (1937) actually listed it as a Tristan breeding species, but in neither case with any supporting evidence; Hagen (1952) deleted the species from the list, a move upheld by Elliott (1957). Mathews' (1937) record probably resulted from a transcription error, since he does not list the species from Gough, 425 km to the south, where a specimen had been collected first in 1922 (Wilkins 1923) and where it has since been proved to breed (Clancey 1981), although the number of recent records from the island is still small (Williams & Imber 1982). Its exact status on Inaccessible remains unclear.

WHITE-RUMPED SANDPIPER *Calidris fuscicollis*

A juvenile was seen and subsequently mist-netted at a small fresh water pool at Blenden Hall on 1 November. The bird was examined in the hand, photographed and ringed before being released. A full description was taken and the biometric data are as follows : wing 122 mm; culmen 23 mm; tarsus 25.5 mm; middle toe (including claw) 24 mm; weight 53.0 g. What may have been the same juvenile bird, although it was not possible to see if it was ringed, was seen on 10 November. An adult White-rumped Sandpiper was found at Warren Cliff on 3 December and a similar bird frequented Blenden Hall 19-21 December. The first juvenile bird was seen to feed hesitantly among resting Subantarctic Skuas; the last bird was twice harried by skuas as it attempted to forage along the tideline, but remained in the area over the subsequent 2 days. Wace & Holdgate (1976) include the White-rumped Sandpiper on the Tristan da Cunha list from "observations by C. C. H. Elliot and Wace on vagrant landbirds in the islands in 1968", but no further details are given.

SWALLOW *Hirundo rustica*

There appear to be only 2 published records of Swallows from the Tristan group, both from the main island and both described as *H. rustica erythrogaster* (Hagen 1952, Elliott 1953). The Denstone Expedition made the following sight records on Inaccessible : 1 November (one) ; 2 November (3); 6 November (2); 7 November (one); 10 November (4); 11–13 November (3). It is likely that these birds were also *erythrogaster* of American origin as they arrived after periods of strong westerly winds and simultaneously with the White-rumped Sandpipers.

Acknowledgements. My thanks are due to the Denstone Expeditions Trust, T. G. Beynon and Dr. M. P. Harris who made it possible for me to go to Inaccessible. D. J. Briggs assisted with field observations and C. P. Siddall and J. R. Dakin found the first White-rumped Sandpiper. I thank G. Avery for identifying the Dove Prions and Dr. R. P. Prŷs-Jones, R. K. Brooke and Prof. W. R. Siegfried for their comments on the manuscript.

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Books Received

Niall, I. 1984. *Feathered Friends.* Pp. 170. Illustrated by Louis Mackay. Chatto & Windus. £9.95.

The author claims to be "neither a naturalist nor an expert ornithologist", but, since he has contributed 'A Countryman's Notes' to *Country Life* for over 30 years, not surprisingly the book can be appreciated for its prose, its country wisdom and the author's enjoyment of observation since childhood of everyday country happenings and characters. Despite the title and his admitted leaning towards anthropomorphism, this is a pleasurably unpretentious small book with which to relax from the stern world of scientific documentation and adjective-less statement.

Lockwood, W. B. 1984. *The Oxford Book of British Bird Names.* Pp. 174. Oxford University Press. £7.95.

The author was Professor of Germanic and Indo-European Philology in Reading until his retirement 2 years ago and thus highly qualified to produce this widely researched dictionary of the English names of British birds. The introduction of 16 pages gives an excellent background, historical and technical, of the subject and there is a 4-page bibliography. The entries under each name are brief but not telegraphic and there is a host of cross references. The work is the modern equivalent of Swainson's *Provincial Names and Folklore of British Birds* (1885) and Kirke Swann's *A Dictionary of English and Folk-names of British Birds* (1913).

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PREFACE

Volume 105 of the *Bulletin* followed the pattern of its recent predecessors with a wide coverage of world geography and nationalities amongst the authors. To the latter I am grateful for their patience and co-operation, as I am also after yet another year to the referees who have so readily provided wise advice and to Caxton & Holmesdale Press, who continue to serve us so well. J. H. Elgood has made his usual careful compilation of the index, and to him the Club is most grateful, as well as to the Honorary Secretary and Treasurer for keeping up to date the List of Members.

JAMES F. MONK (Editor)

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CORRIGENDA

Bull. 104 (1984)

p. 85, Table 1, line 37: *'A.arundinaceus'* not *'A. scirpaceus'*

Bull. 105 (1985)

p. 12, line 11: *'pusilla'* not *'pusillus'*
p. 13, line 10: *'Leptotila'* not *'Leptoptila'*
p. 14, line 9: *'minimus'* not *'minumus'*
p. 15, 8 lines from bottom: *'cerulea'* not *'caerulea'*
p. 39, line 34: *'americana'* not *'americanus'*
p. 68, Table 1, line 27: *'gundlachii'* not *'gundlachi'*
line 33: *'atroviolacea'* not *'atroviolaceus'*
p. 92, Table 1: 2nd species listed *'S.senegalensis'* not *'S.senegala'*
p. 93, Table 2: 'Sylviidae' not 'Sylvidae'; 'Fringillidae' not 'Fringilidae'
p. 99, line 26: *'stairi'* not *'stairii'*
p. 100, 8 lines from bottom: *'Clytorhynchus nigrogularis'* not *'C. nigrogularis'*
p. 127, line 23: *'swainsonii'* not *'swainsoni'*
p. 131, line 3: *'Pisum'* not *'Psium'*

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D. L. SERVENTY, Professor W. H. THORPE, Professor Y. YAMASHINA.

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FORTHCOMING MEETINGS

Tuesday, 2 April 1985 at 6.20 p.m. for 7 p.m. in the Senior Common Room, SHERFIELD BUILDING, Imperial College, London, S.W.7, **Dr Francoise Dowsett-Lemaire and Mr R. J. Dowsett** will speak on **A Survey of the Endangered Forest Birds of Malawi.** There will be a buffet supper with hot dishes on the menu, and those wishing to attend should send their acceptance with a cheque for £4.80 a person to reach the Hon. Secretary at 2 Chestnut Lane, Sevenoaks, Kent TN13 3AR (telephone Sevenoaks [0732] 450313) not later than first post on Thursday, 28 March.

Dr Dowsett-Lemaire and Mr Dowsett have an outstanding knowledge of the birds of Malawi and we are very glad that it has been possible to arrange for them to speak to the Club during their brief visit to this country.

PLEASE NOTE THAT THIS MEETING IS NOT AT OUR USUAL VENUE. THE SHERFIELD BUILDING IS IN THE MAIN BLOCK OF IMPERIAL COLLEGE, ON THE WEST OF EXHIBITION ROAD, WHERE THE SENIOR COMMON ROOM IS ON LEVEL 2 OF THE SHERFIELD BUILDING.

Tuesday, 21 May 1985 at 6.20 p.m. for 7 p.m. in the Senior Common Room, South Side, Imperial College, Prince's Gardens, S.W.7. **Mr W. H. M. Wilkinson,** Chairman of the Nature Conservancy Council, will speak on **Nature Conservation in Great Britain.** There will be a hot buffet supper and those wishing to attend should send their acceptance with a cheque for £4.80 a person to reach the **Hon. Treasurer at 53 Osterley Road, Isleworth, Middlesex TW7 4PW (telephone 01-560 1019) not later than first post on Thursday 16 May.**

PLEASE NOTE THAT THIS MEETING IS BACK AT OUR USUAL VENUE; ALSO THAT ACCEPTANCES FOR THIS MEETING SHOULD BE SENT TO THE HON. TREASURER.

Mr Wilkinson is well known for his interest in birds, as well as in conservation generally, as he was a member of Council of the R.S.P.B. for 12 years, including 7 years as Hon. Treasurer, before being appointed Chairman of the Nature Conservancy Council in 1983.

Tuesday, 2 July 1985 at 6.20 p.m. for 7 p.m. in the Senior Common Room, South Side, Imperial College, Prince's Gardens, S.W.7 **Dr Brian Wood** of University College, London, who has been carrying out research in North Africa, will speak on **Waterfowl Conservation and Wetland Management in Tunisia and Algeria.** There will be a buffet supper and those wishing to attend should send their acceptance with a cheque for £4.80 a person to reach the Hon. Secretary at 2 Chestnut Lane, Sevenoaks, Kent TN13 3AR (telephone Sevenoaks [0732] 450313) not later than first post on Thursday, 27 June.

COMMITTEE

B. Gray (*Chairman*)
R. E. F. Peal (*Hon. Secretary*)
Dr. J. F. Monk (*Editor*)
D. Griffin
D. R. Calder
Revd. G. K. McCulloch, O.B.E. (*Vice-Chairman*)
Mrs. D. M. Bradley (*Hon. Treasurer*)
P. J. Conder, O.B.E.
S. A. H. Statham

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Bulletin of the
BRITISH ORNITHOLOGISTS' CLUB

Vol. 105 No. 1 Published: 20 March 1985

Report of the Committee for 1984

In 1984 six Meetings of the Club were held, all at Imperial College in the Senior Common Room in Prince's Gardens, S.W.7, and they were attended by 144 Members and 74 guests. Attendances reached a 15 year peak between 1979 and 1981 but, apart from those years, the 1984 total of 208 exceeded that for any year since 1965. In May and September there were hot buffet meals with seating at small tables for all Members and guests instead of dinners. The combination of lower prices and still pleasant service has been the ground of favourable comment and the Committee has decided to hold further buffet meals as well as dinners. The Committee would welcome the views of Members at the Annual General Meeting or by post on this subject, so that it may judge the relative demand for each type of meal. In September last the meal prices at Imperial College rose by about 8.3%. The Committee met 6 times in the year and the average attendance of the 9 members was 87%.

It is with very deep regret that the Committee reports the deaths of Mr A. G. E. Ames, M.B.E., F.R.I.C.S. (Member 1957-1984), Mr A. R. Fairhurst (Member 1970-1984), Professor G. H. N. Seton-Watson, C.B.E., M.A. (Member 1962-1984), Captain G. S. Tuck, D.S.O., R.N. (Member 1959-1984) and Professor J. M. Winterbottom, Ph.D. (Member 1955-1984).

There were 34 new Members in the year, 1 rejoined and 3, who were in arrears at the end of 1983, paid up to date in 1984. There were 4 Members who resigned in respect of 1984 and 15 failed to pay their subscriptions during the year. Under Rule (4) 16 Members were struck off in January 1984, having been in arrears with their subscriptions from 1983. The paid-up membership at the end of the year was 410 (230 U.K. and 180 overseas), a record number and an increase of 14 on the year. Leaflets to publicize Club membership were dispatched in *Ibis* in July 1984 and helped recruit 13 more new Members than joined the previous year. While that was gratifying, in 1981, the previous year in which leaflets had been dispatched in *Ibis*, there had been 60 new Members. However, it must be remembered that the number of new members joining the British Ornithologists' Union was smaller following the subscription increase in October 1982, so that there was less potential for recruitment by the Club last year than in 1981. Thanks to the pegging of printing charges during the year, it was possible to hold the subscription price of the *Bulletin* at £15 in 1984 and to decide to keep it at the same figure for 1985 also, despite continuing inflation.

The number of non-member subscribers to the *Bulletin* fell to 165, because 9 new subscribers were more than offset by 19 who did not renew. The *Bulletin* remains of especial interest to libraries and this decrease can be attributed to the squeeze on academic budgets in more than one country. The international nature of the Bulletin is shown by the paid circulation at the end of the year being 253 in the U.K. and 322 in other countries.

Last September Dr D. W. Snow handed over charge of the *Bulletin* back number stock to Mr M. P. Walters, also of the British Museum (Natural History), Tring, who has kindly taken over their supervision and dispatch. The Club owes a debt of gratitude to Dr Snow, who for over 8 years has had the back numbers in his care for storage and dispatch of orders, entailing considerable work in addition to his already heavy workload. Sales of back numbers, after being exceptionally large in 1983, were in 1984 in the region of the annual mean for 1981-1982. Runs can be supplied back to Vol. 37 (1916-1917) and there are copies of some earlier issues, including a very few sets of some earlier complete volumes, details of which are available on application to the Honorary Secretary.

Volume 104 of the *Bulletin* ran to 156 pages. During the year the typesetting method was changed and there is an increase in the number of words per page. Our printers have maintained the same charges as at the end of 1983. The delay in publication remains at 6-9 months from receipt of each paper. The geographical spread of the 51 papers was as wide as usual, covering 38 areas ranging from Wallacea to St Kitts, Ecuador to St Helena, Zambia to Kangaroo Island, Aldabra to Martinique and the 62 authors were of some 20 or so nationalities.

The accounts for 1983, which are not yet available, will be tabled at the Annual General Meeting and published subsequently in the *Bulletin*. Members wanting copies before the Annual General Meeting should apply to the Honorary Treasurer.

Herbert Stevens, a Member of the Club from 1924 until his death in 1964, bequeathed his home at Tring to be held by his Executor to be let (subject to certain conditions) to the Club for 21 years from his death and then, subject to the conditions having been observed, to pass absolutely to the Club. The period of 21 years expires on 1 June 1985. The Committee has been advised that Trustees should be appointed and the property vested in them. A Special Resolution for this purpose will be moved at the Annual General Meeting, in accordance with Rule (12) of the Club, which reads:

> Subject to the terms of any bequest or gift, any stocks, shares, other securities, money or other property (whether real or personal) from time to time belonging to the Club may be vested in trustees for the Club if the Club shall by a special resolution so decide. Such special resolution shall appoint Trustees and shall specify the trusts under which the property is to be held.

ANNUAL GENERAL MEETING

The 1985 Annual General Meeting of the British Ornithologists' Club will be held in the Senior Common Room, South Side, Imperial College, Prince's Gardens, London S.W.7 at 6 p.m. on Tuesday, 21 May 1985.

AGENDA

1. Minutes of the last Annual General Meeting (see *Bull. Brit. Orn. Cl.* 104:37).
2. Report of the Committee and Accounts for 1984.
3. The *Bulletin.*
4. Election of Officers.

   The Committee proposes that:—

   (a) Mrs D. M. Bradley be re-elected Honorary Treasurer

   (b) Mr R. E. F. Peal be re-elected Honorary Secretary

   (c) Mr K. F. Betton be elected a member of the Committee *vice* Mr P. J. Conder, O.B.E., who retires by rotation.

5. The following resolution will be proposed as a Special Resolution in terms of Rule (12) of the Club's Rules:—

   "(i) That in exercise of the powers conferred by Rule (12) the freehold property known as "Clovelly" 4 Beaconsfield Road Tring Hertfordshire devised to the Club in the Will dated 27th May 1957 of the late Herbert Stevens shall be vested in JOHN GORDON PARKER and PETER JAMES OLIVER and DAVID REGINALD CALDER as Trustees for the Club appointed in accordance with Rule (12)

   (ii) That the Trustees shall hold the property upon trust for the Club in accordance with the trusts and with or subject to such powers and provisions as are declared or contained by or in the Trust Deed submitted to the meeting and initialled by the Chairman for the purposes of identification and that such trusts powers and provisions be approved accordingly.

   (iii) That the Chairman and the Honorary Treasurer of the Club be and they are hereby authorised to execute the said Deed on behalf of themselves and all other members of the Club."

6. Any other business of which notice shall have been given in accordance with Rule (7).

By Order of the Committee,
RONALD E. F. PEAL
Honorary Secretary

The text of the Trust Deed referred to above is as follows:—

THIS TRUST DEED is made the day of One thousand nine hundred and eighty five BETWEEN BERNARD GRAY of 37 Barton Croft Barton-on-Sea New Milton

Hampshire and DIANA MARY BRADLEY of 53 Osterley Road Isleworth in the County of Middlesex of the one part and JOHN GORDON PARKER of Tye House Bramford Tye Ipswich in the County of Suffolk PETER JAMES OLIVER of 1 Albany Court Palmer Street London SW1 and DAVID REGINALD CALDER of 7 St. Bride Street London EC4A 4AT (hereinafter called "the Trustees") of the other part:—

WHEREAS:—

(1) BY his last Will dated 27th May 1957 the late HERBERT STEVENS ("the Testator") (who died on the 1st June 1964) appointed as the executor of his will Williams Deacon's Bank Limited and (inter-alia) bequeathed to his executor his freehold property known as "Clovelly" 4 Beaconsfield Road Tring Hertfordshire ("the property") UPON TRUST to let the property to the British Ornithologists' Club ("the Club") upon certain conditions contained in the will and that provided that the Club observed and performed the said conditions his executor should at the expiry of Twenty-one years from the date of death of the Testator hold the property UPON TRUST for the Club absolutely

(2) Twenty-one years has elapsed since the date of death of the Testator and the executor has acknowledged that the Club has fulfilled the conditions laid down in the said Will and that the property is now held upon trust for the Club absolutely

(3) In accordance with the Rules of the British Ornithologists' Club ("the Club") the affairs of the Club are managed by a Committee consisting of the Chairman of the Club the Honorary Treasurer Honorary Secretary and other officers and four other members of the Club and the said BERNARD GRAY and DIANA MARY BRADLEY are respectively the Chairman and the Honorary Treasurer of the Club

(4) In accordance with Rule (12) of the Club's Rules the Club has by a Special Resolution passed on the day of
1985 resolved to vest the property in the Trustees upon the trusts and with or subject to the powers and provisions as are declared in this deed and the Chairman and the Treasurer of the Club were authorised to execute the deed on behalf of themselves and all other members of the Club

(5) The Trustees consented to act as trustees for the purposes of this deed

NOW THIS DEED WITNESSETH and it is hereby agreed and declared by and between the parties hereto of the first part on behalf of themselves and all other members of the Club and the trustees as follows:—

1. IN this Deed unless the context otherwise requires
   "the Trustees" means the trustee or trustees for the time being under this Deed
   "the Committee" means the persons for the time being members of or purporting to act as the Committee of the Club or otherwise for the time being having the management of the affairs of the Club, and
   "the Treasurer" means the Treasurer for the time being of the Club or any person authorised by a resolution of the Committee to act as Treasurer during a vacancy in the office of Treasurer or by reason of the absence or incapacity of the Treasurer

2. The Trustees hereby declare that they hold the property in trust for the Club in fee simple and they hereby agree that they will at the request and cost of the Committee convey the property to such person or persons at such time and in such manner or otherwise deal with the same as the Committee shall direct or appoint and otherwise subject to the trusts powers and provisions hereinafter declared or contained

3. The Trustees hereby declare that they hold the property in trust for the general purposes of the Club and not as land forming part of the general endowment of the Club or in respect of which any special trust has been declared and that it is not and has not at any time been occupied for the purposes of the Club

4. (1) Subject to any conditions subject to which the property may be vested in them The Trustees shall hold the property for the time being vested in them under this Deed upon trust to sell the same and any personal property for the time being so vested in them upon trust to call in, sell and convert into money such part thereof as may not consist of money but the Trustees shall have power to postpone the sale of the property for such period as they without being liable to account may think proper

(2) Real or personal property may be vested in and held by the Trustees under this Deed subject to conditions as to the purposes or manner in which such property is to be used or applied PROVIDED THAT the Trustees shall not accept any property subject to any such conditions unless the conditions shall have been approved by the Club in general meeting or the Committee

(3) Subject to the foregoing provisions of this Clause and to any conditions subject to which any particular property may be vested in them the Trustees shall pay to the Treasurer any income arising from the property or from any money investments or other property from time to time held by the Trustees under this Deed, and may apply any money representing the capital so held by them or any part thereof for such purposes as the Committee from time to time approve

(4) The Trustees shall insure and keep insured at the expense of income or capital to their full value any buildings and chattels for the time being subject to this Deed against loss or damage from such causes as they in their absolute discretion may think fit and at the expense of income or capital and partly of either in such proportions as they may think fit

(5) The Trustees shall not be required to incur any expenditure in respect of the property or of any other buildings or chattels for the time being subject to this Deed unless and until moneys for that purpose shall have been provided by the Club

5. With the approval of the Committee trust money may be invested or laid out in the purchase of or at interest upon the security of such stocks funds shares securities or other investments or property (real or personal) of whatsoever nature

and wheresoever situate and whether involving liability or not and whether producing income or not as the Trustees shall think fit including the purchase with or without vacant possession of any real or leasehold property for the purposes of the Club to the intent that subject as aforesaid the Trustees shall have the same full and unrestricted powers of investing and transposing investments and laying out moneys in all respects as if they were abolutely entitled thereto beneficially

6. (1) Except so long as a bank other trust corporation is the Trustee the number of trustees under this deed shall not be less than three

(2) The power of appointing new trustees under this Deed whether to fill a vacancy caused by the death retirement or removal of a trustee or as an additional trustee shall be vested in the Committee and exercisable by a resolution of the Committee and effect shall be given to any such resolution by an instrument in writing under the hand and seal of the Chairman or the Secretary or other officer for the time being of the Club

(3) The Trustees or any of them may retire from the trusts hereof on giving not less than one month's notice in writing of his or their intention so to do to the Chairman or the Secretary or other officer for the time being of the Club and upon the expiration of such notice the trustee giving the notice shall cease to be a trustee under this Deed

(4) If the Club in general meeting shall at any time by resolution decide that it is desirable that the Trustees or any of them should cease to be trustees or a trustee under this Deed and notice to that effect signed by the Chairman or the Secretary or other officer for the time being of the Club shall be given to the Trustees or that trustee the Trustees or that trustee shall forthwith on the giving of such notice cease to be trustees or a trustee under this Deed

7. The Trustees may decline to accept the transfer of any property of any kind involving or likely to involve the owner thereof in personal liability

8. The Trustees may with the previous approval of the Committee at any time by an instrument in writing under seal revoke or alter all or any of the trusts powers and provisions herein contained or add any new trusts powers and provisions whether applicable to any particular property held by the Trustees or generally

9. (1) Any directions given by the Committee to the Trustees shall be sufficiently given if given by notice in writing under the hands of the Chairman and the Secretary or other officer for the time being of the Club or of any two officers of the Club

(2) Any approval or consent given by the Committee for any of the purposes of this Deed shall be sufficiently given if pased by a majority of the members of the Committee voting thereon at a meeting of the Committee

(3) A copy of a resolution of the Committee purporting to be certified as a true copy by the chairman of the meeting at which such resolution was passed shall for all purposes be sufficient evidence that such resolution was duly passed by the requisite majority at a meeting of the Committee duly convened for the purpose

(4) A notice in writing signed by the Chairman or the Secretary or other officer for the time being of the Club certifying that the person named in the notice is the Chairman Secretary or other officer of the Club shall for all purposes be sufficient evidence of the fact so certified unless or until such notice is revoked or superseded by a similar notice so given

(5) The receipt of the Treasurer for any sum payable by the Trustees under this Deed to the Club or to the Treasurer shall be a sufficient discharge to the Trustees for the sum so payable

10. Any of the Trustees being a solicitor accountant or other person engaged in any profession or business shall be entitled to charge and be paid all usual professional or other charges for business transacted time spent and acts done by him or any partner of his in connection with the trusts hereof including acts which a Trustee not being in any profession or business could have done personally
IN WITNESS whereof the parties hereto have hereunto set their hands and seals the day and year first above written

SIGNED SEALED and DELIVERED
by the said BERNARD GRAY
in the presence of:— }

SIGNED SEALED and DELIVERED
by the said DIANA MARY BRADLEY
in the presence of:— }

SIGNED SEALED and DELIVERED
by the said JOHN GORDON PARKER
in the presence of:— }

SIGNED SEALED and DELIVERED
by the said PETER JAMES OLIVER
in the presence of:— }

SIGNED SEALED and DELIVERED
by the said DAVID REGINALD CALDER
in the presence of:— }

The seven hundred and fifty-seventh Meeting of the Club was held in the Senior Common Room, South Side, Imperial College, London, S.W.7 on Tuesday, 15 January 1985 at 7 p.m. The attendance was 19 Members and 4 guests.

Members present were: B. GRAY *(Chairman)*, P. J. BELMAN, Mrs DIANA BRADLEY, Dr R. A. CHEKE, P. J. CONDER, A. GIBBS, Revd. T. W. GLADWIN, D. GRIFFIN, P. A. D. HOLLOM, R. H. KETTLE, J. KING, Dr A. G. KNOX, Dr J. F. MONK, A. G. MOORE, J. G. PARKER, R. E. F. PEAL, N. H. F. STONE, S. N. STUART and R. L. WALKER.

Guests present were: D. BRADLEY, Dr JUDITH A. COLES, Mrs J. M. GLADWIN and T. PARMENTER.

Dr A. G. Knox gave an address on Crossbills, which was of wide interest and much appreciated.

Winter status of birds on Grand Cayman Island

by Alick G. Moore

Received 17 June 1984

Since the observations of Olson *et al.* (1981) I have had the opportunity to make two Christmas visits to Grand Cayman Island and to observe many of the species they saw and other species about which there is little information during the winter period. Olson *et al.* were on Grand Cayman in November 1979 and report on 3 visits by Alexander Wetmore in January and February 1972 to 1975 and one in December 1971 by D. W. Johnston.

The habitat destruction on Grand Cayman is alarmingly rapid, and even in the 2 years between my visits, large tracts of both coastal and inland forests had been bulldozed for yet more condominia, roadways and rubbish tips. The only evidence of interest in birds is a litter of cartridge cases, but interestingly the actual number of birds had not apparently decreased and I saw more species in 1983 than in 1981. Despite the varying status of birds described in the accounts with which I have made comparison, I do not believe that bird numbers or the number of species have decreased substantially in the past 15 years, though the habitat and cover must have changed dramatically.

I have assumed that the birds I observed were either residents or over-wintering and were not on passage, though it is likely that they included several casual and irregular winter visitors. My time was spent mostly in the mangrove areas of the southwest and northwest, and in the deciduous woodland and savannah scrub of the central parts. During my second visit I concentrated more on the coastline and inland water areas, such as there are remaining.

Dates of visits made by Johnston, Wetmore, Olson and myself are as follows, giving a fair cover of the midwinter period:- D. W. Johnston, December 1971; A. Wetmore, 26 Jan. -16 Feb. 1972; 8-23 Feb. 1973; 7-18 Feb. 1975; S. L. Olson *et al.* 14-22 Nov. 1979; A.G.M., 22-31 Dec. 1981 and 24 Dec-8 Jan. 1984.

In the following species accounts my own observations and comments on the winter status follow the findings of Johnston J.), Wetmore W.) and Olson *et al.* O.).

Species accounts follow order and nomenclature of Olson *et al.* as far as possible.

SPECIES ACCOUNTS

PIED-BILLED GREBE *Podilymbus podiceps*
J.) Common; W.) Common; O.) Observed.
Present on many inland waters. Flock of 40-50 on Meagre Bay Pond. Regular in Winter.

MAGNIFICENT FRIGATEBIRD *Fregata magnificens*
J.) Uncommon; W.) Small numbers, but regular; O.) Fairly common on occasions.
Present on west and south coasts at any time. Maxima 30, late afternoon. Regular in winter.

GREAT BLUE HERON *Ardea herodias*
J.) Uncommon; W.) Uncommon; O.) Common at South Sound.
Seen daily, up to 5, at South Sound and on reef. Occasionally on inland waters. Regular in winter in small numbers.

COMMON EGRET *Egretta alba*
J.) Uncommon; W.) Regular, 40+ on one occasion; O.) Not seen.
Generally uncommon, but occasional flocks of 20+. Probably not regular in winter.

SNOWY EGRET *Egretta thula*
J.) Very common; W.) Common; O.) Common.
Seen on any visit to inland waters, but small numbers only. Regular in winter.

LITTLE BLUE HERON *Egretta caerulea*
J.) Fairly common; W.) Fairly common; O.) Fairly common.
Adults and immatures seen on any visit to mangroves or inland waters. More rarely on shore. Regular in winter.

LOUISIANA HERON *Egretta tricolor*
J.) Fairly common; W.) Common; O.) Uncommon.
Seen regularly at mangroves and inland waters. Less frequently on shore line. Immatures and adults allowed a very close approach when catching small crabs in a flooded quarry — a dance-like activity, the legs used as springs and wings half-opened to jump quickly from one crab to the next. Regular in winter.

CATTLE EGRET *Egretta ibis*
J.) Common; W.) Common; O.) Common.
Seen in fields and on the airport at any time. Regular in winter.

GREEN HERON *Butorides virescens*
J.) Fairly common; W.) Common; O.) Common.
Regularly seen in mangroves and on more open waters, including shoreline. Regular in winter.

YELLOW-CROWNED NIGHT HERON *Nyctanassa violacea*
J.) Uncommon; W.) Uncommon, none on third visit; O.) Not seen on G. Cayman.
Regularly seen on South Shore, up to 6 birds, catching sand crabs. Apparently regular in winter.

LEAST BITTERN *Ixobrychus exilis*
J.) One in March 1970; W.) One in February 1972; O.) Not seen.
Not seen by me, but 2-3 regularly reported at certain inland marshes. Apparently very low density resident in winter.

GLOSSY IBIS *Plegadis falcinellus*
J.) Singleton; W.) 2 Seen; O.) Not seen.
Not seen by me and no local reports. Probably only casual in winter.

BLUE-WINGED TEAL *Anas discors*

J.) Common; W.) Small numbers on each visit; O.) No comments.
Regularly observed on most inland waters in flocks of 5-10, but one flock of 45 was seen on flooded quarry near Newlands. Certainly a winter resident.

AMERICAN WIGEON *Anas americana*

J.) Uncommon; W.) 2 in 1973 and 2 in 1975; O.) No comment.
5 on Colliers Pond and small flocks regularly reported there and occasionally on other inland waters. Apparently uncommon in winter.

SHOVELER *Anas clypeata*

J.) Reported; W.) No mention; O.) No mention.
Single female at Colliers Pond and a pair at Newlands quarry. Possibly casual in winter.

LESSER SCAUP *Aythya affinis*

J.) Uncommon; W.) 2 in 1972; O.) No mention.
2 seen with flock of *Podilymbus podiceps* on Meagre Bay Pond. Possibly casual in winter.

RING-NECKED DUCK *Aythya collaris*

J.) No mention; W.) No mention; O.) 4 seen.
Not seen by me or reported. Probably casual in winter.

WEST INDIAN TREE DUCK *Dendrocygna arborea*

J.) Uncommon; W.) No mention; O.) No mention.
5 close to Meagre Bay Pond and 4 on mangrove fringe on extreme NW of the island. Regular, but low density, in winter.

MASKED DUCK *Oxyura dominica*

J.) No mention; W.) One in 1972; O.) No mention.
Not seen by me or reported. Accidental only.

TURKEY VULTURE *Cathartes aura*

J.) reported; W.) several in 1975; O.) One seen.
Not seen by me. Probably irregular in winter.

OSPREY *Pandion haliaetus*

J.) Uncommon; W.) No mention; O.) 3 sightings.
Observed on both visits on several occasions; 3 different birds in 1983. Probably only casual in winter.

MARSH HAWK *Circus cyaneus*

J.) Uncommon; W.) No mention; O.) No mention.
One seen and reported regularly from Barkers area. Probably only casual in winter.

MERLIN *Falco colombarius*

J.) Occasional; W.) Uncommon; O.) Observed.
Observed on both visits, over mangroves at dusk. Possibly regular in winter.

AMERICAN KESTREL *Falco sparverius*

J.) Uncommon; W.) Uncommon; O.) Observed.
Seen on 3 occasions on second visit, at least 2 different birds. Reports of regular sightings indicates probably regular in winter.

PEREGRINE FALCON *Falco peregrinus*

J.) No mention; W.) No mention; O.) No mention.
A single female seen in 1981. Surely only casual in winter.

SORA RAIL *Porzana carolina*

J.) 1 road-kill in December; W.) One in 1972; O.) No mention.
Not seen by me, but sufficient good habitat remains for residence to be a possibility.

Common Gallinule *Gallinula chloropus*

J.) Common; W.) Common; O.) Common.

Seen on all mangrove pools and inland waters. Usually very wary as subject to predation by local stonethrowers. Regular in winter.

Purple Gallinule *Porphyrula martinica*

J.) No winter record; W.) 2 birds, one a road-kill; O.) No comment.

Single birds seen in Barkers area. Regular sightings reported. Scarce but regular in winter.

American Coot *Fulica americana*

J.) Very common; W.) Common; O.) Common.

Seen on many occasions including 11 at Meagre Bay Pond. Regular in winter.

Killdeer *Charadrius vociferus*

J.) One in February; W.) 12 in 1973, one 1975; O.) No mention.

Single bird near Breakers in 1983. Probably irregular in winter.

Semipalmated Plover *Charadrius semipalmatus*

J.) Occasional; W.) Frequent; O.) No mention.

Not seen in 1981, but in 1983 good numbers seen on beaches and inland waters. Apparently regular in winter.

Wilson's Plover *Charadrius wilsonia*

J.) Uncommon in fall; W.) One 1973; O.) No mention.

4 at Prospect Point, 2 on North Shore in 1983. Regular but scarce in winter.

Black-bellied Plover *Pluvialis squatarola*

J.) Uncommon; W.) Very common; O.) Observed.

Seen any time on most beaches. Up to 40 at Prospect Point. Regular in winter.

Ruddy Turnstone *Arenaria interpres*

J.) Uncommon; W.) Common; O.) "a few".

Seen daily on rocky parts of shore and always near Georgetown dock. Regular in winter.

Common Snipe *Capella gallinago*

J.) Uncommon; W.) One 1972; O.) One only.

Several flushed from marshy ground near South Sound, one in mangrove fringe and (in 1983) 3 on flooded scrape near Country Club. Scarce but regular in winter.

Whimbrel *Numenius phaeopus*

J.) Not listed; W.) One 1972; O.) Not seen.

2 on South Sound shore regularly in 1981, one 1983. Probably only casual in winter.

Spotted Sandpiper *Actitis macularia*

J.) Fairly common; W.) Uncommon; O.) 2 seen.

Seen fairly frequently in a variety of habitats — beaches, mangroves, scrapes. Regular but not common in winter.

Solitary Sandpiper *Tringa solitaria*

J.) Uncommon; W.) No mention; O.) One seen.

One in 1983 in flooded scrape near Red Bay. Casual in winter.

Greater Yellowlegs *Tringa melanoleuca*

J.) Fairly common; W.) Regular, but not in 1975; O.) Occasional.

Single bird on shore in 1981, but several groups of 5-6 at inland waters in 1983. Regular in winter.

Lesser Yellowlegs *Tringa flavipes*

J.) Fairly common; W.) Seen in 1972 and 1973; O.) No mention.

Seen inland on several occasions. Regular in winter.

Willet *Catoptrophorus semipalmatus*
J.) Uncommon; W.) No mention; O.) No mention.
A few observed singly in 1981 and 1983, mostly inland, and reported regularly. Regular in winter.

Knot *Calidris canutus*
J.) One record; W.) No mention; O.) No mention.
Not seen by me. Presumably only casual in winter.

Pectoral Sandpiper *Calidris melanotos*
J.) Rare in fall; W.) No mention; O.) No mention.
Single bird in 1983 at Prospect Point. Only casual in winter.

Semipalmated Sandpiper *Calidris pusillus*
J.) No mention in winter; W.) Small flocks 1972 and 1973; O.) Not seen.
Not seen by me in 1981, but frequently observed in 1983, including a flock of c. 65 at pond behind Barkers. Probably regular in winter.

Least Sandpiper *Calidris minutilla*
J.) Rare in spring and fall; W.) Observed in 1972 and 1973; O.) Not seen.
Not seen in 1981, but several individuals seen in 1983 at Prospect Point and on flooded scrape near Red Bay. Probably regular in winter.

Black-necked Stilt *Himantopus mexicanus*
J.) Common; W.) Regularly seen, up to 12 in a flock; O.) Not seen.
Several flocks seen with first year juveniles. 5-10 regularly on South Sound marsh, 22 on Meagre Bay Pond and 50+ on Country Club pond at Spotts. Certainly regular in winter.

Short-billed Dowitcher *Limnodromus griseus*
J.) Uncommon; W.) No mention; O.) No mention.
Several small groups encountered, one a flock of 20+ at pond behind Barkers. Probably regular in winter.

Herring Gull *Larus argentatus*
J.) Accidental; W.) No mention; O.) No mention.
Single second year bird at East Shore in 1983. Only casual in winter.

Ring-billed Gull *Larus delawarensis*
J.) No mention; W.) No mention; O.) No mention.
Single birds, both juveniles, seen at South Sound in 1981 and 1983. Accidental in winter.

Laughing Gull *Larus atricilla*
J.) Uncommon; W.) Single birds on each visit; O.) No mention.
15–20 always along South Shore. Flock of 60+ following fishing vessel about 1 mile off shore. Regular in winter.

Royal Tern *Thalasseus maximus*
J.) Common; W.) Regularly seen, maximum 23 in a flock; O.) Observed.
Up to 30 always present at South Sound. Regular in winter. (This is the only tern mentioned by Olson *et al.* and by Wetmore. Johnston additionally records *Sterna hirundo* as uncommon, 7 Sep–18 Dec, but I judge this to represent late passage and not winter regularity.)

White-crowned Pigeon *Columba leucocephala*
J.) Common; W.) Common, particularly in 1975; O.) Infrequent.
On both visits I found it scarce. Single birds in mangroves and forest, and very wary. Regular in winter.

Zenaida Dove *Zenaida aurita*
J.) Uncommon; W.) Common; O.) Very few seen.

Single birds in various habitats, but wary and difficult to observe. Regular in winter.

White-winged Dove *Zenaida asiatica*

J.) Common; W.) Uncommon; O.) 4-5 sightings.

Several semi-tame birds round the airport. Regular in winter.

Common Ground Dove *Columbina passerina*

J.) Common; W.) Common; O.) Common.

Seen regularly at roadsides, in gardens, cultivated areas, mangroves and forest edges. Regular in winter.

White-bellied dove *Leptoptila jamaicensis*

J.) Uncommon; W.) Not mentioned; O.) Few seen.

3 walking in limestone forest; quite tame and reluctant to fly. Regular in winter.

Cuban Parrot *Amazona leucocephala*

J.) Uncommon; W.) Occasional singletons and small flocks; O.) Common.

Common in flocks of 8–10 in central and eastern parts. One flock of 22. Regular in winter.

Yellow-billed Cuckoo *Coccyzus americanus*

J.) No winter record; W.) No mention; O.) One found dead.

Not seen by me, but reported in winter (P. Bradley). Possibly casual in winter.

Mangrove Cuckoo *Coccyzus minor*

J.) Uncommon in winter; W.) No mention; O.) Uncommon.

One near South Sound swamp, 2 others reported in scrub in western parts (P. Bradley). Uncommon, but regular in winter.

Smooth-billed Ani *Crotophaga ani*

J.) Common; W.) Common; O.) Common.

Abundant in a variety of habitats, particularly open scrub near cultivated areas. Regular in winter.

Barn Owl *Tyto alba*

J.) Very uncommon; W. One reported; O.) Not seen.

Not seen by me. Possibly a scarce winter resident.

Belted Kingfisher *Ceryle alcyon*

J.) Uncommon; W.) Common; O.) One seen repeatedly.

Regularly seen and heard on beach line, inland lakes and mangroves. Regular in winter.

Flicker *Colaptes auratus*

J.) Fairly common; W.) Common; O.) Common.

Frequently heard in mangroves, but seen less frequently there and in more thinly wooded country. Regular in winter.

West Indian Red-bellied Woodpecker *Melanerpes superciliaris*

J.) Fairly common; W.) Uncommon; one only in 1973, none in 1975; O.) Common.

Several birds seen in almond forest (*Terminalia catcappa*) and a pair resident by condominium at South Sound. Regular in winter.

Yellow-bellied Sapsucker *Sphyrapicus varius*

J.) Uncommon; W.) several in 1972 and 1973; O.) Not seen.

One female in 1981 in black mangroves (*Avicennia nitida*). Uncommon, but probably regular in winter.

Loggerhead Kingbird *Tyrannus caudifasciatus*

J.) Fairly common; W.) Common; O.) Common.

Frequently seen near mangroves and cultivated areas, heard calling regularly. Regular in winter.

La Sagra's Flycatcher *Myiarchus sagrae*

J.) Fairly common; W.) Common; O.) Reasonably common.

Seen regularly in mangroves and limestone forest. Several young birds present. Very tame. Regular in winter.

Eastern Wood Peewee *Contopus virens*

J.) No winter record; W.) 2 seen in 1973; O.) Not seen.

2 in 1983, one in casuarinas (*Casuarina equisetifolia*) and a second in logwood forest (*Haematoxylon campechianum*). Probably regular in winter.

Least Flycatcher *Empidonax minumus*

J.) One report from March 1904; W.) One in 1972; O.) No mention.

Not seen by me and no local reports. Probably only casual in winter.

Caribbean Elaenia *Elaenia martinica*

J.) Very common; W.) Very common; O.) Tolerably common.

Seen frequently in mangroves and other forested areas, invariably in pairs and on occasion with young birds. Regular in winter.

Barn Swallow *Hirundo rustica*

J.) No winter record; W.) Small flocks on each visit; O.) Good numbers.

Not seen by me on either visit. Irregular in winter; possibly Olson's records were late transients.

Tree Swallow *Tachycineta bicolor*

J.) No mention; W.) Up to 20 in 1973; O.) Not seen.

Not seen by me. Unlikely to be regular in winter.

Rough-winged Swallow *Stelgidopteryx ruficollis*

J.) No winter record; W.) Several in 1973; O.) Not seen.

4–6 seen over inland waters on 2 occasions in 1983. Probably not regular in winter.

Mockingbird *Mimus polyglottos*

J.) Very common; W.) Common; O.) Common.

Regularly seen in all cultivated areas, along roadsides and in woodlands. Frequently singing. Regular in winter.

Catbird *Dumetella carolinensis*

J.) Fairly common; W.) Uncommon; O.) Somewhat scarce.

Seen occasionally in deep undergrowth of buttonwood (*Conocarpus erecta*) or logwood, more frequently heard. Regular in winter.

Blue-grey Gnatcatcher *Polioptila caerulea*

J.) Uncommon; W.) One in 1972; O.) No mention.

Not seen by me. Not regular in winter.

Thick-billed Vireo *Vireo crassirostris*

J.) Common; W.) No mention; O.) Scarce.

Uncommon in forest or mangroves. 4 seen together near South Sound in mangroves. Single birds in limestone forest. Uncommon but regular in winter.

White-eyed Vireo *Vireo griseus*

J.) One seen; W.) Not mentioned; O.) Not mentioned.

One in buttonwood scrub 1981. One near North Bay in 1983. Casual in winter.

Yucatan Vireo *Vireo magister*

J.) Common; W.) Common; O.) Relatively common.

Common in forests, less so in mangroves, but seen daily. Regular in winter.

Black-and-white Warbler *Mniotilta varia*

J.) Fairly common; W.) One in 1973; O.) Common.

Regularly seen in forests, less common in mangroves. Regular in winter.

SWAINSON'S WARBLER *Limnothlypis swainsonii*
J.) 3 sightings; W.) No mention; O.) No mention.
Not seen by me, despite long efforts in suitable habitat. Possibly regular in winter but at very low density or only casually present.

WORM-EATING WARBLER *Helmitheros vermivorus*
J.) Uncommon; W.) One seen; O.) One caught.
Uncommon, but 4–6 sightings on each visit in several different habitats. Usually near water and low down. Regular in winter.

TENNESSEE WARBLER *Vermivora peregrina*
J.) Only in April; W.) No mention; O.) No mention.
2 seen in mangroves in 1981, and a group of 5 seen once and 2 separate singles, all in mangroves in 1983. Probably regular in winter.

BLUE-WINGED WARBLER *Vermivora pinus*
J.) No mention; W.) No mention; O.) No mention.
3 seen, one in excellent spring plumage, in casuarinas near South Sound. Probably only casual in winter.

PARULA WARBLER *Parula americana*
J.) Fairly common; W.) Uncommon; O.) Scattered individuals.
Regularly observed in woodlands and mangrove edges. Regular in winter.

YELLOW WARBLER *Dendroica petechia*
J.) Very common; W.) Infrequently observed; O.) Scarce.
Seen in good numbers on every visit to mangroves; easily whistled out. Several birds in very close to full breeding plumage. Regular in winter.

MAGNOLIA WARBLER *Dendroica magnolia*
J.) Rare; W.) No mention; O.) No mention.
2 seen, 1 in mangrove, 1 in roadside scrub, both in 1981. Not seen in 1983. Casual in winter.

CAPE MAY WARBLER *Dendroica tigrina*
J.) Uncommon; W.) No mention; O.) Not common.
Regularly seen in mangroves and logwood scrub on both visits. One male in good spring plumage. Regular in winter.

BLACK-THROATED BLUE WARBLER *Dendroica caerulescens*
J.) Uncommon; W.) No mention; O.) Not seen.
2 in roadside ditch in 1981. Not seen in 1983. Probably regular, though uncommon, in winter.

BLACK-THROATED GREEN WARBLER *Dendroica virens*
J.) Uncommon; W.) No mention; O.) No mention.
2 in casuarinas, 2 in mangroves, in 1981; more frequent in 1983, in both mangroves and scrub. Regular in winter.

MYRTLE WARBLER *Dendroica coronata*
J.) Formerly common in winter, not recorded in recent years; W.) Common in 1972 only; O.) Not seen.
2 birds in wet scrub by mangroves in 1983. Probably now only casual in winter.

CERULEAN WARBLER *Dendroica caerulea*
J.) One summer record only; W.) No mention; O.) No mention.
One seen in almond forest near Prospect Point in 1981. Undoubtedly only casual in winter.

YELLOW-THROATED WARBLER *Dendroica dominica*
J.) Uncommon; W.) Uncommon; O.) One bird.
3 in casuarinas near Rugby pitch in 1981. One in same place in 1983. Probably regular in winter.

PRAIRIE WARBLER *Dendroica discolor*
J.) Uncommon; W.) One only in 1972; O.) Not common.
Fairly frequently seen in Red Birch forest (*Bursera simaruba*) on both visits; also in mangroves in 1983. Regular in winter.

VITELLINE WARBLER *Dendroica vitellinus*
J.) Fairly common; W.) 2 only, in 1972; O.) Common.
Frequently seen, particularly in limestone forest with red birch and logwood. Generally tame and curious and often heard calling. Regular in winter.

PALM WARBLER *Dendroica palmarum*
J.) Very common; W.) Very common; O.) Very common.
The most abundant bird on the island. Found almost everywhere, except thick dry forest. Regular in winter.

OVENBIRD *Seiurus aurocapillus*
J.) Uncommon; W.) One in 1973; O.) At least 2 seen.
4 by roadside and in casuarinas up to 10m above ground. In 1983 only one seen, in red birch. Regular in winter.

NORTHERN WATERTHRUSH *Seiurus noveboracensis*
J.) Uncommon; W.) 2 in 1972; O.) 4 birds.
Not seen in 1981, but several singly on mangrove fringe in 1983. Regular in winter.

KENTUCKY WARBLER *Oporornis formosus*
J.) One record; W.) No mention; O.) No mention.
Not seen by me and not reported locally. Only casual in winter.

COMMON YELLOWTHROAT *Geothlypis trichas*
J.) Common; W.) One in 1972; O.) Infrequent.
Seen on many occasions, usually low down near water, but also in buttonwood scrub. Tame and curious and easily whistled out. Regular in winter.

AMERICAN REDSTART *Setophaga ruticilla*
J.) Fairly common; W.) Uncommon; O.) Common.
Seen regularly on every visit to mangroves. Usually females. Regular in winter.

YELLOW-BREASTED CHAT *Icteria virens*
J.) No mention; W.) One seen clearly; O.) Not seen.
Not seen by me, but I agree with Olson *et al.* that Wetmore would be unlikely to mistake this bird, although he makes no mention of this observation in his journal notes. Surely only a vagrant.

BANANAQUIT *Coereba flaveola*
J.) Abundant; W.) Abundant; O.) Abundant.
Very common in cultivated areas, woodlands and mangroves. Several family groups observed. Regular in winter.

STRIPE-HEADED TANAGER *Spindalis zena*
J.) Fairly common; W.) Uncommon O.) Fairly common in flocks.
Regularly seen on both visits, some in small flocks, but more often in company of other species. Regular in winter.

SUMMER TANAGER *Piranga rubra*
J.) Rare transient; W.) No mention; O.) No mention.
2 seen in 1981 in almond forest. Not seen in 1983. Probably only casual in winter.

GREATER ANTILLEAN GRACKLE *Quiscalus niger*
J.) Common; W.) Very common; O.) Common.
Very common in mangroves, less so in cultivated areas. Tame and curious. Regular in winter.

Yellow-faced Grassquit *Tiaris olivacea*
J.) Common; W.) Common; O.) Occasionally seen.
Common by roadsides and in scrub. Regular in winter.

Rose-breasted Grosbeak *Pheucticus ludovicianus*
J.) Rare; W.) No mention; O.) Only seen on Cayman Brac.
One female seen in logwood in 1983. Probably regular but rare in winter.

Indigo Bunting *Passerina cyanea*
J.) Uncommon; W.) 2 only; O.) One seen.
Not seen in 1981, but several in 1983 in changing plumage, on fringe of cultivation, and several reported locally. Apparently regular in winter.

Cuban Bullfinch *Melopyrrha nigra*
J.) Common; W.) Uncommon; O.) Common.
Seen frequently in various types of undergrowth. Tame but silent. Regular in winter.

Savannah Sparrow *Passerculus sandwichensis*
J.) 2 records; W.) Single birds flushed; O.) Not seen.
Not seen by me. Probably irregular but uncommon in winter.

Grasshopper Sparrow *Ammodramus savannarum*
J.) Fairly common; W.) No mention; O.) No mention.
2 in savannah scrub in 1983, but reported regularly (P. Bradley). Apparently regular in winter.

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Notes on coastal birds of Puerto Melo, Chubut, Argentina

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Recent ornithological discoveries in coastal areas of the Province of Chubut, Argentina, demonstrate that much remains to be learned about the distributions of birds in this zoogeographically important region. These finds include new breeding localities for several littoral species (Zapata 1965, Olrog 1967, Navas

1970, Erize 1972, Daciuk 1975), the discovery of a new subspecies (perhaps species) of gull (Devillers 1977) and a new species of steamer-duck (Humphrey & Thompson 1981). Substantial harvesting of Magellanic Penguins *Spheniscus magellanicus* in the 1800s, recent mortality of penguins, cormorants and ducks caused by oil spills (Jehl 1975) and apparent declines in breeding populations of guano-producing cormorants (F. Fauring), emphasize the need for current information on the avifauna of this region. In addition, information on the birds of Chubut can be found in general references on neotropical birds (Murphy 1936, Meyer de Schauensee 1970, Olrog 1959, Blake 1977), older regional works (Durnford 1877, 1878, Burmeister 1888, Peters 1923), and more recent avifaunal surveys (Bo 1958, Zapata 1969, Boswall & Prytherch 1972, Boswall 1973, Jehl *et al.* 1973, Jehl 1974, Jehl & Rumboll 1976).

During 5 visits between 1960 and 1982 we made observations that add to the knowledge of several littoral species of bird in the vicinity of Puerto Melo, Chubut, Argentina, especially regarding the status of the Flying Steamer-Duck *Tachyeres patachonicus* and the newly discovered White-headed Flightless Steamer-Duck *T. leucocephalus.*

Study area

Puerto Melo (44°01′S, 65°50′W) is located in a well protected, island-studded bay c. 30 km SSW of Camarones on the Atlantic coast of the Province of Chubut, Argentina. A map of the region is provided in Humphrey & Livezey (1983). The climate is cool temperate. Tidal flux averages 6 m, exposing extensive mud flats in bays and provides intermittent land connections to several near-shore islands. Observation and collection of birds at Puerto Melo and immediate vicinity were made 5–8 Nov 1960, 14 Sep to 7 Oct 1979, 3–17 Feb and 13–17 Dec 1981, and 12–16 Jan 1982. Data also were collected during excursions to the following sites in the region: Isla Blanca (7 Nov 1960), Isla Tova (18 and 25 Sep 1979), Isla Tovita (25 Sep 1979), Punta Táfor (30 Sep 1979), and Isla Arce (13 Jan 1982). Specimens are on deposit at the Museum of Natural History, University of Kansas, Lawrence (KUMNH), the Department of Biology, Southwestern College, Winfield, Kansas, and the Museo Argentino de Ciencias Naturales, Buenos Aires, Argentina.

SPECIES ACCOUNTS

Southern Giant Petrel *Macronectes giganteus.* Previously unknown breeding colonies of giant petrels were discovered on Isla Arce and Islote Gran Robredo, Jan 1982 (Humphrey & Livezey 1983). Nearest previously known breeding localities are in the Falkland Islands.

White-chinned Petrel *Procellaria aequinoctialis.* One female was collected 5 Oct 1979 as it followed our boat near Islote Escobar.

Blue-eyed Cormorant *Phalacrocorax atriceps.* 2 seen on 5 Oct and one on 17 Dec in a colony of King Cormorants *P. albiventer* on Islote Escobar; the latter is an abundant breeding species on Isla Blanca (c. 1000 nests) and Islote Escobar (250-300 nests). The breeding distribution and abundance of *P. atriceps* in Chubut is uncertain. Behn *et al.* (1955) and Devillers & Terschuren (1978) reviewed the systematic relationships of *P. albiventer* and *P. atriceps,* considered by some to be morphs of a single species.

ROSY-BILLED POCHARD *Netta peposaca.* A flock of 12 seen in Puerto Melo Bay on 16 Dec 1981. Blake (1977) stated that this species occurs in Argentina south only to Río Negro Province. Evidently the first record for Chubut; previous Patagonian records were from Río Negro Province (Peters 1928), Santa Cruz Province (*pers. obs.*) and Tierra del Fuego (Keith 1970).

WHITE-HEADED FLIGHTLESS STEAMER-DUCK *Tachyeres leucocephalus.* This abundant resident, described by Humphrey & Thompson (1981) from this locality, was confused until recently with its smaller, flighted, but otherwise closely similar congener *T. patachonicus.* The species breeds commonly throughout the region, sometimes nesting in dense aggregtions on offshore islands (Humphrey & Livezey, in press). Downy young were observed throughout Nov-Feb.

FLYING STEAMER-DUCK *Tachyeres patachonicus.* This species is a spring and summer visitor (Sep-Jan), its winter status unknown. Possibly breeds, but most previous references to nests of *T. patachonicus* (Boswall & Prytherch 1972, Boswall 1973, Boswall & MacIver 1979, Daciuk 1976*a*) pertain to those of *T. leucocephalus.* Unless seen in flight, distinction in the field from *T. leucocephalus,* with which it sometimes flocks, is difficult. All 3 specimens of *T. patachonicus* collected from Puerto Melo were yearlings but capable of flight, suggesting that Flying Steamer-Ducks in this region are young, non-breeding birds.

SEMIPALMATED PLOVER *Charadrius semipalmatus.* One was seen on 26 Sep 1979. Blake (1977) stated that this species occcurs in Argentina south only to Santa Cruz Province, although Humphrey *et al.* (1970) listed a single bird from Isla Grande, Tierra del Fuego.

BLACK-BELLIED PLOVER *Pluvialis squatarola.* A single individual was sighted on 3 Feb 1981. Blake (1977) stated that this species is less common east of the Andes than in Chile, and occurs regularly south only to Buenos Aires. The only other Patagonian record is a single bird at Río Grande, Tierra del Fuego (Jehl & Rumboll 1976).

LESSER GOLDEN PLOVER *Pluvialis dominica.* Single birds were seen on 12 Feb and 13 Dec. 1981. Blake (1977) gave the southern limit of distribution in Argentina as the provinces of Mendoza, Cordoba, and Buenos Aires. Evidently our 2 records, 2 November sightings at San Blas (Devillers & Terschuren 1977) and one January specimen from Tierra del Fuego (Humphrey *et al.* 1970), are the only records for this species in Patagonia.

HUDSONIAN GODWIT *Limosa haemastica.* Single birds were seen on 12 and 16 Feb 1981. Dabbene (1920) and Jehl & Rumboll (1976) listed other records for this species that is a scarce visitor in the provinces of Chubut, Santa Cruz, and Tierra del Fuego.

LESSER YELLOWLEGS *Tringa flavipes.* 1–15 were seen on 5 dates Sep-Dec This species is casual to uncommon south of Río Negro Province (Blake 1977).

SUBANTARCTIC SKUA *Catharacta a. antarctica.* An uncommon and local breeder on several islands, including Isla Blanca, Isla Arce (aggregation of 75–100 nests), and Islote Gran Robredo. The resident subspecies also nests at Punta Tombo (Daciuk 1975) and the Falkland Islands (Devillers 1978).

DOLPHIN GULL *Leucophaeus scoresbii.* Nests locally on islands at the edges of coromorant colonies (F. Fauring). The northernmost known breeding locality is Punta Tombo, Chubut (Daciuk 1977).

BAND-TAILED GULL *Larus belcheri.* Adults were seen near island nesting colonies of *L. dominicanus* on Islote Laguna in Puerto Melo bay and at Punta Táfor, and adults with juveniles were seen in February at Puerto Melo; probably nests locally. Olrog (1967) first documented the breeding of *L. belcheri* on the Atlantic coast of Argentina at Bahía San Blas, Buenos Aires Province. Devillers (1977) argued persuasively that the Atlantic population be considered specifically distinct (*L. atlanticus*).

CAYENNE (SANDWICH) TERN *Sterna sandvicensis* subsp. Probably breeds locally and is known to nest at other localities in coastal Chubut (Zapata 1965, Daciuk 1972, 1973, 1976b). Most individuals have the entirely yellow bill typical of South American *S. s. eurygnatha* (Voous 1968, Blake 1977); however, on 5 and 8 Feb 1981 we saw 2 which had the black, yellow-tipped bills characteristic of *S. s. sandvicensis* which breeds in North America and the Caribbean (Junge & Voous 1955). The taxonomy and geographic variation in the species or species-group remain problematic (Buckley & Buckley 1984).

BLACK SKIMMER *Rynchops niger*. 3 were seen on 15 Dec 1981. Blake (1977) stated that this species breeds south only to Buenos Aires Province, and is casual to Santa Cruz Province.

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Recent immigration of the Striated Warbler *Megalurus palustris* to Borneo

by Charles M. Francis

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The Striated Warbler *Megalurus palustris* is found from India through Burma, Thailand, and south China to Indochina as well as Java and the Philippines (King *et al.* 1975). Other members of the genus extend from Japan and the Philippines through New Guinea south into Australia. The area comprising peninsular Malaysia, Sumatra and Borneo represents a distinct gap in this distribution, which may be related to the habitat preferences of these warblers. All members of the genus are non-migratory inhabitants of grassy or marshy areas. Historically, most of the Sunda area north of Java was forest-covered, and unsuitable for *Megalurus*. Recently, though, large areas of forest have been cleared and extensive open areas and grasslands are starting to appear. It is thus perhaps not surprising that these birds should start to expand their range to fill this gap.

Megalurus palustris was first recorded in Borneo on 15 October 1982 when I found 3 at Lahad Datu, eastern Sabah, Malaysia in long grass by the airfield. They were seen again in November 1982, and February and July 1983, confirming their resident status. Several individuals were present in August 1983 (F. H. Sheldon), which suggests that they were successfully breeding. In mid-July 1983 Ben King and Dennis Yong discovered at least 6 on the Tempassuk Plain near Kota Belud in western Sabah. I saw several more there in February and April 1984. Further field work may well find them in other suitable areas.

As there are very few bird observers in Sabah it is possible that some of these birds have been previously overlooked, since Lahad Datu airport is not an area regularly visited by ornithologists. On the other hand, Tempassuk Plain is one of the recognized bird-watching sites in Sabah, and since *Megalurus palustris* is a large and distinctively shaped warbler, has a loud and conspicuous song and frequently calls from exposed perches (the most distinctive call was a harsh "*cha....cha....cha..cha.ch.ch.ch.ch...*") it is unlikely to have been overlooked there for long. These records probably represent a recent range expansion.

On 26 November 1982 one of the Lahad Datu *Megalurus* was netted to confirm its identity (it was later ringed and released). Photographs and measurements (mm, gm) were compared with specimens of *Megalurus* from Java, Thailand and the Philippines in the bird collection of the British Museum (Natural History). D. R. Wells also compared them with Javan specimens in the Singapore museum. Measurements (mm): total length 235; wing 89; tail 112; tarsus 33.4; calmen 17.6; weight 34.1 g. Soft parts: upper mandible dark grey; lower mandible bluish grey; feet grey with a pinkish brown tinge.

Comparison clearly identified the bird as *Megalurus palustris,* but individual variation is strong enough often to obscure differences between subspecies. Males average much larger than females within each subspecies, preventing useful comparison of measurements between subspecies for specimens of unknown sex (such as this one). However a few differences in coloration were apparent in birds with fresh plumage. *M. p. palustris* from Java shows little of the contrast between the warm brown on the crown or the tertials and the buffy brown on the rest of the upperparts which is apparent in the Sabah specimen, and the underparts were somewhat buffier with slightly heavier streaking on the breast. *M. p. toklau* from mainland S. E. Asia had much heavier streaking on the underparts, particularly on the flanks, and the crown slightly more streaked on most individuals, though the back coloration showed a great deal of individual variation. *M. p. forbesi* from the Philippines was closest in all respects to the Sabah birds. Some specimens were nearly identical in coloration to the Lahad Datu specimen, and the breast streaking, although variable, was always light. Several individuals observed carefully in the field at Tempassuk Plain were also distinguished by greyish underparts with very little streaking on the breast, supporting allocation of the whole Sabah population to *M. p. forbesi.*

The likely dispersal mechanisms of the species are not well known. The nearest breeding population is in the Philippines on Mindanao (Bruce 1980), at least 250 km from the Lahad Datu population. Immature birds may regularly engage in post-fledging dispersal movements and individuals may at times be storm-driven to Sabah. The disjunct distribution of birds at Tempassuk and Lahad Datu, c.180 km apart, suggests that the birds are in fact quite vagile and that they may readily be capable of filling suitable habitat as it becomes available.

Acknowledgements. My studies have been jointly supported by the Canadian volunteer organization CUSO and the Sabah Forest Department. I particularly wish to thank Mr. P. M. Andau, Assistant Chief Game Warden of Sabah for his assistance with field work. B. King, F. H. Sheldon and D. Yong kindly provided me with field notes. D. R. Wells reviewed Singapore material for me and made helpful comments on the manuscript.

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A new subspecies of White Bellbird *Procnias alba* (Hermann) from southeastern Amazonia

by David C. Oren and Fernando C. Novaes

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A population of White Bellbirds *Procnias alba* (Hermann) inhabits the Serra dos Carajás, Pará, in southeastern Brazilian Amazonia (Roth *et al.* 1984). The species is otherwise Guianan in distribution (Snow 1973, 1982, Haffer 1978); the only previous record south of the Amazon is Wallace's (1853) from the vicinity of the city of Pará (Belém). Snow (1973) considers Wallace's record so puzzling that he explicitly omits it in his treatment of the geographical distribution of the species. In light of the discovery of this bellbird in Carajás, Wallace's birds may now be interpreted as wanderers from this southern population.

Three adult male specimens from Carajás in the Museu Paraense Emílio Goeldi (MPEG) collection have significantly larger bills than northern conspecifics. Bellbirds are obligate frugivores and the size of the bill is of great adaptive significance, as it determines the maximum diameter of exploitable fruits (Snow

1973). The absence of any overlap in bill length and gape measurements in the 2 populations of *P. alba* makes them easily distinguishable and justifies the designation of a new trinomen.

Procnias alba wallacei subsp. nov.

Holotype. Adult ♂ (MPEG # 35043) from manganese mine south of N1 camp (elevation 700 m), Serra dos Carajás, Pará (1°27′S, 48°29′W), Brazil. Collected by Manoel Santa Brígida on 26 August 1983.

Paratypes. 2 adult ♂'s (MPEG # 35042 and # 35302) from manganese mine south of N1 camp and main road near N2 camp, respectively (both 700 m), Serra dos Carajás (c.6°5, 50°30′W), Pará, Brazil, collected on 25 August and 10 September 1983.

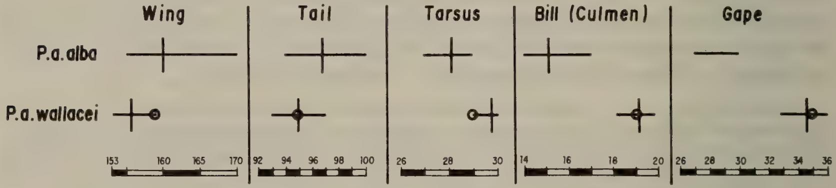

Figure 1. Ranges and means (mm) of mensural characteristics of *P. a. alba* and *P. a. wallacei;* data for *P. a. alba* from Snow (1973, 1982), who did not publish a mean for gape (maximum diameter of exploitable fruit plus 3 mm); wing measure is flattened; values for holotype circled.

Description. Male resembles *P. a. alba* in plumage and details of the wattle, which arises form the base of the culmen. Differs from the nominate form in that the wing and tail are somewhat shorter, while the tarsus and bill are significantly larger. Female unknown.

Remarks. According to Snow (1982: 171) the bill of *Procnias* is "generally described as black in all species". The 3 specimens of *P. a. wallacei* had the upper bill black and the lower mandible grey with a black tip. This might be another character to distinguish the southern population; however, the bill of an adult male *P. a. alba* (MPEG # 32489) from Rio Paru do Leste, northern Pará, collected on 20 November 1978 also had the lower mandible grey (Novaes 1980:43). The lower mandible rapidly changes to black following death, and it seems probable that in life the lower mandible is grey in all *P. alba*.

The 2 *P. a. wallacei* taken in August weighed 219 g and 222 g, slightly more than 3 male *P. a. alba* (Snow 1982). Their stomachs contained 2 large round yellow drupes of Burseraceae with stones 16–19 mm in diameter (# 35043) and dark red oval drupes of Meliaceae 10–15 mm in length (# 35042).

Distribution. Known from the type locality and the vicinity of Belém, Pará, Brazil.

Etymology. It is a pleasure to name this subspecies for Alfred Russel Wallace (1823-1913), who first observed birds of this race in July 1849 near Belém.

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Soft-plumaged Petrels *Pterodroma mollis* at Great Salvage Island

by Paul C. James and Hugh A. Robertson

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The present status of the endangered North Atlantic races of the Soft-plumaged Petrel *Pterodroma mollis* is of great concern (King 1981, Bourne 1983). It has recently been proposed that they be recognised as good species (Bourne 1983), with *P. feae* nesting on Bugio (Desertas) and the Cape Verde Islands, and *P. madeira* nesting on Madeira. We report here the occurrence of one of these forms, probably *P. feae*, at Great Salvage Island (30°9′N, 15°52′W), 300 km south of the Madeiran group, on the nights of 19 and 20 June 1983.

On both occasions, birds were heard calling in flight for several minutes at about 01.00 local time at the southwestern end of the island just below the plateau. They flew away from us towards the centre of the island where their calls were lost in the background noise. The calls were quite unlike those of the resident seabird species, but virtually identical to those recorded of *P. mollis* by M. K. Swales at Gough Island (BBC disc 25008), a copy of which we had with us at the time. A sonagram of Swale's recording is reproduced in Cramp & Simmons (1977).

Despite the fact that the calls resembled those of *P. mollis*, it is more likely that we heard either *P. madeira* or *P. feae*, given the proximity of their respective breeding places. It should be noted that even the calls of the form found in New Zealand resemble those of *P. mollis* on Gough (Warham 1979). Not surprisingly, the phonetic descriptions of the calls of *P. feae* and *P. madeira* are variable (Bourne 1955, Jouanin *et al.* 1969, van den Berg & de Wijs 1980), although that of Jouanin *et al.* (1969), describing *P. feae*'s as a long wail, fits what we heard exactly. From this, and the larger numbers and range of *P. feae* over *P. madeira*, it is more likely that the birds we heard were *P. feae*.

If the birds were *P. feae*, the timing of their appearance at Great Salvage Island coincided with their pre-laying period on Bugio, some 250 km to the north (Jouanin *et al.* 1969). As the presence of these birds on Great Salvage Island has not been reported before, it is possible that they were prospecting individuals passing through the area. However, the likelihood that a small breeding population exists should not be entirely dismissed. The recent discovery of a prospecting Swinhoe's Storm Petrel *Oceanodroma monorhis* on the same island (James & Robertson, in press) demonstrates how easily these species are overlooked.

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Notes on Philippine Birds, 6. The status of *Cuculus canorus* in the Philippines

by E. C. Dickinson

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According to duPont (1971) *Cuculus canorus* "winters in the Philippines from northeast Asia", following Delacour & Mayr (1946). However, Mees (1979) considered that "with a single exception, all records from south and east of the main islands of Japan, continental China and Thailand are erroneous, due to confusion with *C. saturatus horsfieldi*". His one exception was from Hoorn, an islet off West Java.

Mees went on to examine the Philippine records from Basilan, Batan, Calayan, Leyte, Luzon (in part), Negros, Palawan and Siquijor. However he omitted 2 records in the literature, one from Luzon by Zimmer (1918) and one from Samar by Potter (1953). It has now been possible to locate the skins of both these as well as to investigate the status of the Palawan record.

It now therefore seems desirable to review by islands the status of all Philippine rcords of *Cuculus canorus.*

BASILAN. McGregor (1907a) reported a male taken on 27 Dec 1906 by collectors from the Bureau of Science. This collection, holding most of the skins taken by McGregor and by its collectors, was destroyed during the Second World War. It has been remarked by Rand & Rabor (1960), based on the identity of an extant Calayan specimen (see below), that "McGregor did not properly distinguish between *canorus* and *saturatus*". Whilst this observation is correct it deserves some explanation. McGregor (1909) recorded *C. saturatus* from the Philippines but he had not seen the specimens himself; he listed it for Mindanao based on Blasius (1890) and for Palawan based on Blasius (1888). He also, erroneously, listed Platen—the collector whose specimens formed the basis for the papers by Blasius—as a collector of *C. canorus* in Palawan. This supposition that both taxa had been collected in Palawan by Platen seems to have led McGregor away from any suspicion that his own '*canorus*' might be the *saturatus* of others, and it appears probable that McGregor indeed had only *saturatus* and not a composite series. If this is so then on the evidence of the surviving Calayan specimen it may be presumed that the Basilan skin was also *saturatus*.

BATAN. A female was taken on 2 June 1907 according to McGregor (1907b) : this may similarly be assumed to have been *saturatus*.

CALAYAN. McGregor (1904) reported collecting 5, including a half grown female on 4 Oct, during the 4 months that he spent there from September 1903 to early January 1904. One of these 5 skins, that of a bird taken 15 Sept 1903 is still extant (Field Museum of Natural History, Chicago—19975) and is *saturatus* as reported by Rand & Rabor (1960).

LEYTE. Rabor (1938) recorded a female with a wing length of 207 mm., collected in May 1937. Parkes (1973) reviewed and rejected this record.

LUZON. Mees (1979) reported mention by Hartlaub & Finsch (1872) of a skin from Luzon in Rijksmuseum Nat. Hist., Leiden, but went on to say that this could not be traced. Zimmer (1918) reported collecting a male on Mt. Mariveles, Bataan on 3 Apr. 1915. This skin is in the American Museum of Natural History and has kindly been examined for me by K. C. Parkes: it proves to be *C. saturatus horsfieldi*. Ringing records from the Dalton Pass given by McClure & Leelavit (1972) almost certainly also relate to *saturatus*.

NEGROS. Rabor (1952) reported collecting—and placing in the collection of Silliman University—a female on 12 Apr. 1950 at Pola, Tanjay. Mees (1979) discussed this and the skin is apparently lost.

PALAWAN. Palawan was listed by McGregor (1909), who gave Platen as the collector. This, as mentioned above, is an error. Blasius (1888), who reported on the Platen collection from Palawan, listed *canoroides* (= *saturatus*) not *canorus*. The specimen in question is still extant in Braunschweig—original no. 14178, collected 8 Oct 1887—and is *saturatus* with a wing length of 202 mm.

SAMAR. Potter (1953) reported taking *C. canorus* on 19 Oct 1945 and *C. saturatus* on 22 Oct 1945. Both were females and taken on Calicoan islet just off southern Samar. The skins are in the University of Michigan, Museum of Zoology (UMMZ) and have been re-examined by Dr. R. B. Payne who writes : "The bird in question is UMMZ 114142 (N. S. Potter no. 106), taken 19 October 1945 on Calicoan, P.I. The wing is 198 (flattened), tail 167. The bird is in juvenile plumage, blackish on the crown with the feathers with a fine whitish edge (1 mm wide), the back is slatey gray with buff bars and whitish edges, the throat is irregularly barred slate and white. The ovary was sketched on the label and is small. It is overall a very dark bird and I don't know why Potter called it "*telephonus*" except that he thought it was *C. canorus* and came from eastern Asia. The edge and undermarginals of the wing are all white, so the bird is *C. saturatus*, by size *C. s. horsfieldi*.

The other specimen mentioned by Potter also is *C. saturatus,* as stated in the *Wilson Bull.* article. Some juvenile plumage is apparent, the bird is browner than 114142 (it is 114143, Potter no. 107), the throat is pale gray, the upper breast dark brown and buff bars, the lower breast and belly barred as in 114142, the bend and under wing marginals are white, the wing (flat) is 184, and the tail is 157."

Siquijor. Listed by McGregor (1909) based on a bird taken in February 1891 by Bourns & Worcester, whose notes are quoted by McGregor: the bird was a male with a wing length of 201 mm. This appears to be too small for eastern populations of *C. canorus* and entirely appropriate for *C. s. horsfieldi*. The skin may turn up in the U.S. National Museum, Washington or the Bishop Museum, Honolulu (or even further afield as this collection has been scattered widely).

In summary, there is no good evidence to support any Philippine record of *Cuculus canorus* and, in accordance with the views of Mees (1979), the species should be removed from the Philippine list until there is evidence for its retention or reinstatement.

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The Italian Specimen of *Bulweria fallax* (Procellariidae)

by Storrs L. Olson

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The enigmatic Jouanin's Petrel *Bulweria fallax* was described only in 1955 (Jouanin 1955) and its breeding grounds remain unknown, although islands off southeastern Arabia are said by Cramp & Simmons (1977) to be suspected; they also state that it occurs at sea in the western Indian Ocean, including the Gulf of Aden, Gulf of Oman, Arabian Sea and possibly the Red Sea. Two far extralimital records consist of a specimen taken 4 September 1967 at Lisianski Island in the northwestern Hawaiian chain (Clapp 1971), and another specimen, one of 3 observed, taken 2 November 1953 at Cimadolmo (Treviso), Italy (Giol 1957).

Through the kindness of Signora Vittoria Giol, I was able to examine the Italian specimen (Giol collection 586, unsexed) and compare it in detail with the Lisianski specimen (USNM 543185) and another taken in the Arabian Sea (USNM 485538), both males. There are no points by which the Italian bird can be distinguished from other examples of *B. fallax* in overall external appearance, bill shape, plumage coloration, or size (culmen 30.5 mm, wing 232, tail 112, tarsus 29.5—cf. the measurements in Jouanin 1955, 1957, and Moltoni 1956).

In one character, however, namely the distinctly bicoloured feet, the Italian bird differs from all previously described specimens. The tarsi and the proximal two-thirds of the inner and middle toes and web and the bases of the claws were originally light, probably flesh coloured, whereas the outer toe and the distal thirds of the webbing and of the other 2 toes are black, with the 2 colours being strongly demarcated, as shown in the photographs accompanying Giol's (1957) note. The specimen is prepared as a mount and the light coloured portions of the feet have been painted; but by viewing the underside of the webbing it is clearly seen that the black portions of the webbing, which are the novel feature of the specimen, were not painted, Sr. Giol's taxidermist having followed the natural pattern of colouration very accurately when painting the specimen.

In no case has the colouration of the feet of previously known specimens of *Bulweria fallax* been described as distinctly bicoloured (Jouanin 1955, 1957, Berlioz 1955, Moltoni 1956, Bourne 1960, specimen label on USNM 485538). Typically, all the webbing is light in colour, with only the outer toe being blackish. C. Jouanin confirms that he has seen no specimens of *B. fallax* with distinctly bicoloured feet. It is possible that such a condition occurs in the Indian Ocean population (or populations) of *Bulweria fallax*, but alternatively, the Italian bird may have come from another, as yet undiscovered population.

Bourne (1960), who was in turn cited by Cramp & Simmons (1977), considered *Bulweria fallax* to be "a large Indian Ocean representative of Bulwer's Petrel [*Bulweria bulwerii*] of the Atlantic and Pacific, probably best regarded as a race of that species." Size alone precludes such an interpretation, as do numerous skeletal differences. Furthermore, bones of a large species of *Bulweria (B. bifax*—Olson 1975) have been recovered from Quaternary deposits on the island of St. Helena, thus showing that at least one population of *Bulweria* the size of *B. fallax* once occurred in the Atlantic. It is not at all unlikely that other populations of large *Bulweria* existed elsewhere in the Atlantic and perhaps in the Mediterranean as well. Remnants of some of these populations might still exist.

Although the Italian occurrence was considered "so extraordinary that unnatural origin, such as release by sailor, must be regarded as possibility (Jouanin)"

(Cramp & Simmons 1977: 135), the record is certainly no more extraordinary than that from Lisianski, where human interference was never regarded as a possibility, particularly given the natural propensity for petrels to wander far out of their normal ranges (Bourne 1967). Considering that the Italian bird was accompanied by 2 others like it and came to land during a period of storm, I see no reason to question the naturalness of this occurrence. I would regard transportation of 3 of these birds to the Mediterranean by a sailor to be far more unlikely than their having arrived on their own; the possibility that they may have come from some population other than those in the western Indian Ocean, a possibility which is supported by the differences in foot colour, further supports the validity of the Italian record.

Acknowledgements. I am deeply indebted to Signora Vittoria Giol for enabling me to borrow and examine the specimen of *Bulweria fallax* in her late husband's collection, and for the considerable trouble that she incurred to pack and send it. For much assistance in acting as intermediary I am likewise heavily indebted to Carlo Violani. I thank Richard Conroy, Smithsonian Office of International Activities, and the staff of the American Consulate in Trieste for arranging the transportation of the specimen. The manuscript has benefited from the comments of Christian Jouanin, Harald Pieper, and Carlo Violani.

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Systematics of the *Turdus fumigatus/hauxwelli* group of thrushes

by D. W. Snow

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There has been much disagreement about the systematic treatment of the thrushes for which the specific names *fumigatus, hauxwelli* and *obsoletus* are used. The group is widely distributed, from Costa Rica and Panama through much of northern South America south to Bolivia, Mato Grosso and southeastern Brazil (Fig. 1). They are lowland forest thrushes, brown above and paler and more rufous below, mostly with dark bills, and without a coloured eye-ring. Part of the difficulty is the usual one affecting groups of closely related forms with geographically isolated populations: whether to treat moderately differentiated allopatric forms as specifically or only subspecifically distinct. A further difficulty, however, arises, from the fact that in parts of central Amazonia there are variable populations that may be broadly divided into 2 colour types (*fumigatus* and *hauxwelli*), and there has been uncertainty as to whether 2 species coexist in this area, as Gyldenstolpe (1945) concluded, or whether there is a variable population resulting, perhaps, from secondary contact between 2 distinct but still conspecific forms.

The main purpose of this paper is to examine, in more detail than has been done heretofore, the situation in central Amazonia, and to suggest the systematic treatment that is most consistent with the known facts. The recent distributional history of this group of thrushes is also briefly discussed.

I have had for examination what are still, it seems, the 2 best series available of thrushes of the *fumigatus/hauxwelli* complex from central and upper Amazonia and adjacent parts of Bolivia: 39 specimens from the Carnegie Museum, and 28 specimens from the Stockholm Museum. It was as a result of studying the Stockholm series that Gyldenstolpe came to the conclusion mentioned above.

Distribution and geographical variation – the general picture

Figure 1 shows the greater part of the known distribution of the group under consideration. The following are the salient points relevant to the present discussion.

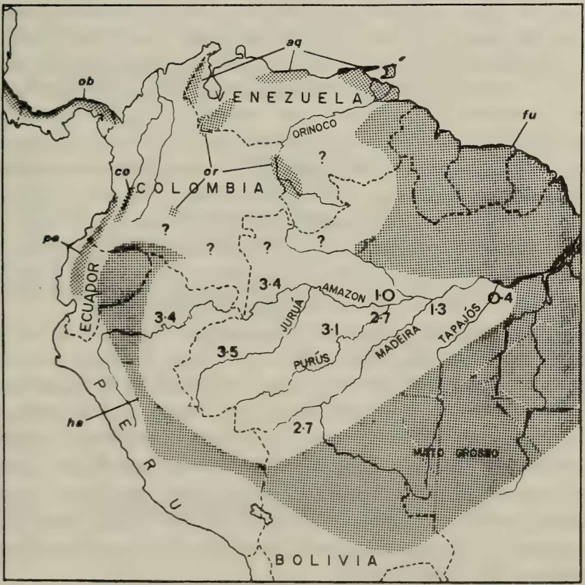

Fig. 1. Map of Brazil and adjacent countries showing the distribution of *Turdus fumigatus* in Central and South America (except for part of eastern Brazil). Populations are probably continuous across Amazonia from the west (*T.f. hauxwelli*, *ha* on map) to the east and northeast (*T.f. fumigatus*, *fu* on map), as indicated by the stippling and the unstippled central area containing the named rivers and 9 plumage scores — see text. Question marks north of this area indicate areas where the species is still unknown. Other subspecies as follows: *or*, *orinocensis*, known from 3 disjunct areas; *aq*, *aquilonalis*, also from 3 disjunct areas (presumably intergrading with *fumigatus* to the southeast); *co*, *colombianus*; *pa*, *parambanus*; *ob*, *obsoletus*.

The whole of the eastern and northeastern parts of the range is occupied by birds with warm brown upperparts (Ridgway's *antique-brown/raw umber*, the oblique stroke indicating a tint intermediate between the two named) and paler, warm rufous brown underparts (Ridgway's *cinnamon/clay*, verging to bright *antique-brown*). There is no, or only a very small, white belly patch; the under tail-coverts are bright cinnamon; and the bill is blackish. There are other differences in particular parts of the plumage from the form that occurs in western Amazonia, but they are all, it seems, basically consequences of the brighter, more rufous plumage coloration. These rufous birds are divided into 4 slightly differentiated subspecies: *fumigatus* in eastern Brazil, the Guianas and eastern Venezuela; *aquilonalis* along the coast of northern Venezuela and in Trinidad; and 2 outlaying Antillean populations, *personus* in Grenada and *bondi* in St. Vincent. The east Brazilian coastal population is isolated from the populations to the west, and it seems that the birds are sparsely or patchily distributed in a vast area south of the Amazon; at any rate there are few records.

Upper Amazonia, from Bolivia in the south probably to southern Colombia in the north, is occupied by birds with less warm brown upperparts (Ridgway's *cinnamon brown* with olive wash) and markedly duller brown underparts (Ridgway's *clay colour/drab*). There is a pure white belly patch extending forward to about the middle of the folded wing; the under tail-coverts are mainly white with fawn-brown edges; and the bill tends to have a yellowish tip (greenish or brownish in dried skins). These are the birds to which the name *hauxwelli* is applied (type locality: Pebas, on the Peruvian Amazon). To the north, the populations of the upper Orinoco and the eastern base of the Andes in Colombia and western Venezuela (*orinocensis*) are intermediate between *hauxwelli* and *fumigatus* in colouring. They have been linked with both, i.e. treated as a subspecies of *fumigatus* (e.g. Zimmer & Phelps 1955) or of *obsoletus* = *hauxwelli* (e.g. Meyer de Schauensee & Phelps 1978). (In Peters' *Checklist* (Ripley 1964) the Orinoco region of southern Venezuela is listed in the range of both *T.f. orinocensis* and *T.h. hauxwelli*, apparently through misinterpretation of earlier literature, in which the original specimen, from Nericagua on the upper Orinoco, was first treated as *hauxwelli* and later as a subspecies of *fumigatus*.)

The intermediate character of *orinocensis* suggests that it may be linked both to *hauxwelli* populations to the south and to *fumigatus* populations to the east (Fig. 1); but there is a gap in the known range in southern Venezuela, between the Orinoco and the Rio Paragua where *fumigatus* is recorded. It seems unlikely that there are no populations of this group of thrushes in the intervening 500 km gap.

Naumburg (1930) reported that birds from western Mato Grosso are also intermediate between *fumigatus* and *hauxwelli*. Few specimens have been collected in southern Amazonia, between Bolivia and the Belém area, but here, as in southern Venezuela, it may be suspected that there is a transition from *hauxwelli*-type to *fumigatus*-type populations.

Between these 2 possible transition zones, about which little is known, lies the area where Gyldenstolpe (1945) reported that birds of *hauxwelli* type coexist with birds of *fumigatus* type.

Finally, west of the Andes there are 3 populations: *obsoletus* in Costa Rica, Panama and extreme northwest Colombia; the closely related *parambanus* along the Pacific slopes of the Western Andes of Colombia and Ecuador; and, slightly more distinct, *colombianus* in a limited area on the east slopes of the Westen Andes in the Cauca and Patía valleys. Their taxonomic treatment has been varied.

Hartert (1920) was the first to suggest that they should all be treated, as well as *hauxwelli*, as subspecies of *fumigatus*, and Hellmayr (1934) adopted this treatment; but many authors have maintained *obsoletus* as a separate species, in which *hauxwelli* may also be included (e.g. Ridgely 1976). Ripley (1964), who treats *fumigatus* and *hauxwelli* as specifically distinct, links *colombianus* with *hauxwelli*, presumably because it has distinctly olive-brown rather than rufous-brown upperparts, and *obsoletus* and *parambanus*, which have rufous-brown upperparts, with *fumigatus*. Slud's (1964) description of the calls of *obsoletus* in Costa Rica suggests that they are distinctly different from those of *fumigatus* in Trinidad (pers. obs.). Until a thorough study has been made of all aspects of the biology of these western forms it seems best to maintain a wide polytypic species concept and link them with the forms east of the Andes. They are not considered further here.

The situation in upper Amazonia

As mentioned, from a study of specimens collected in central and upper Amazonia, especially on the rivers Purús and Juruá, Gyldenstolpe (1945) concluded that *fumigatus* and *hauxwelli* are distinct species, and that they overlap in this area. He admitted, however, that *hauxwelli* is variable, and in particular that birds from northern Bolivia tend towards *fumigatus*-type plumage (cf. Naumburg (1930) on birds from western Mato Grosso, adjacent to Bolivia, mentioned above); but he decided nevertheless that they "must be assigned to that species [*hauxwelli*] rather than to *T.f. fumigatus*". In reaching this decision, Gyldenstolpe was undoubtedly hampered by a typological mode of thinking that tended to force specimens into hard-and-fast taxonomic categories.

TABLE 1

Scoring of 10 plumage characters in the *Turdus fumigatus/hauxwelli* group of thrushes

	fumigatus type	*hauxwelli* type
1. General colour of upperparts	*antique brown/raw umber*	*cinnamon brown* with *olive brown* wash
2. General colour of underparts	*cinnamon/clay*, verging to bright *antique brown*	*clay colour/drab*
3. Belly patch	absent or very small	pure white, extending forward to about level of mid-wing
4. Under tail-coverts	bright *cinnamon*	mainly white, dull brown (more or less *fawn*) edges
5. Leg feathering	*clay colour*	*fawn*/grey
6. Inner webs of remiges	broad bright *cinnamon* edges	no cinnamon edges
7. Outer edges of remiges	*cinnamon/antique brown*	*clay colour*
8. Under wing coverts	bright rufous	dull rufous
9. Upper surface of tail	with rufous sheen	with blue-purple sheen
10. Rump	bright, approaching *amber brown*	*cinnamon brown*

For each of the 10 characters, a score of 0 was given for *fumigatus* type, 4 for *hauxwelli* type, and 1, 2 or 3 for different degrees of intermediacy. Each specimen was then given a final score based on the mean of all 10 scores; thus a pure *fumigatus*-type bird scores 0.0 and a pure *hauxwelli*-type bird 4.0.

Italicised colours are from Ridgway (1912).

In an attempt at an objective analysis of the situation in upper Amazonia, I have classified each specimen on the basis of 10 plumage characters, each of which may be scored from 0 to 4, a score of 0 being assigned to *fumigatus*-type coloration and a score of 4 to *hauxwelli*-type coloration (Table 1). The mean of all 10 scores thus indicates to what extent an individual bird resembles one type or the other. Since the colour characters are not, and would not be expected to be, independent of one another there is a tendency for individuals to have similar scores for most of the characters; but this is by no means always the case. Thus some birds score 4 for most characters, but 0 for the belly patch. All that is claimed for this procedure is that it is more reliable than a judgment based on one or two characters only, or on a general impression.,

Two other characters, bill-colour and wing-tip shape, were considered but are not used in the analysis: (1) *The bill-colour* of the birds of *hauxwelli* type, as already mentioned, tends to be paler at the tip (appearing greenish or brownish in dry skins) than that of birds of *fumigatus* type (dark brown or blackish). The colour is, however, related to age, and may vary with season, and in any case is not always easy to judge. (2) *The wing-tip* shape may show some difference. Eisenmann (MS) noted that birds of *fumigatus*-type generally have the 2nd primary (from the outside) longer than the 7th in the folded wing; while birds of *hauxwelli* type have the 2nd primary either shorter than or of the same length as the 7th, which means that they have a more rounded wing. I have examined this character in a large number of speciments, from Amazonia and elsewhere, and also in other *Turdus* spp., and have had to exclude it from the analysis. In the first place, there is a definite tendency in *Turdus* for birds in first-year plumage (i.e. with their first set of flight-feathers) to have slightly more pointed wings than older birds. This may be related to the need for young birds to disperse, and so to have to fly farther and more often than adult birds. But in particular cases it is not always easy or even possible to distinguish birds in first-year plumage from older birds, especially when the plumage is worn. Secondly, even in birds of the same age-category, wing-tip shape is rather variable. Hence large samples are needed in order to detect slight differences in wing-shape between populations. Nevertheless, birds of *fumigatus* and *hauxwelli* types probably do differ slightly on average, as shown in Table 2.

No consistent differences were found in any other mensural character (wing-length, relative tail-length, culmen-length, tarsus-length) between birds of *fumigatus* and *hauxwelli* types.

TABLE 2

Wing-tip shape of birds of *Turdus fumigatus* and *T. hauxwelli* plumage types

Length of 2nd primary (p2) in relation to inner primaries	*fumigatus* type (N = 32)	*hauxwelli* type (N = 42)
= p6	1	–
between p6 and p7	7	14
= p7	17	17
between p7 and p8	7	10
= p8	–	1

Notes. Primaries are numbered from the outside; Birds with longest p2 (= p6) have most pointed wings; those with shortest p2 (=p8) have most rounded wings; *fumigatus* type includes some specimens of the very similar subspecies *aquilonalis*, from Trinidad.

TABLE 3

Plumage scores (see Table 1) for 9 samples of birds from middle and upper Amazonia of the *Turdus fumigatus/hauxwelli* group of thrushes

		N	Scores	Mean score
Brazil	Lower Tapajós	8	0–1.5	0.4
	Lower Madeira	3	1.2–1.6	1.3
	North side of middle Amazon (Manacapuru and Codajaz)	5	0–0.9, 3.2	1.0
	Lower Purús	8	0.3, 0.8, 3.2–3.8	2.7
	Middle Purús	26	2.1–3.6	3.1
	Upper Amazon (Tonantins)	2	3.4, 3.4	3.4
	Juruá	6	3.3–3.6	3.5
Peru	Loreto	3	3.0–4.0	3.4
Bolivia	El Beni and Santa Cruz	6	2.4–3.1	2.7

Table 3 shows the scores for 9 samples from the area between the upper Amazon in Peru, Bolivia and the Rio Tapajós in middle Amazonia; the mean scores are also shown in Fig. 1. It is evident that birds from the lower Tapajós are pure, or almost pure, *fumigatus* type. Populations from Amazonian Peru, the upper Amazon in Brazil, the Juruá and the upper and middle Purús, with mean scores of 3.1-3.5, are predominantly of *hauxwelli* type. The mean score for Bolivian birds (2.7) confirms Gyldenstolpe's statement, that they tend slightly towards *fumigatus* type. Populations from the lower Madeira, from north of the middle Amazon (Codajás, Manacapuru) and from the lower Purús are intermediate, with mean scores of 1.0-2.7.

TABLE 4

Individual scores (see Table 1) for middle and upper Amazonian samples of the *Turdus fumigatus/hauxwelli* group of thrushes

Score	total	N	intermediate populations*	Score	total	N	intermediate populations
3.8–4.0	2		1	1.8–1.9	–		
3.6–3.7	3			1.6–1.7	1		1
3.4–3.5	12		2	1.4–1.5	1		
3.2–3.3	11		4	1.2–1.3	2		2
3.0–3.1	9			1.0–1.1	–		
2.8–2.9	5			0.8–0.9	2		2
2.6–2.7	4			0.6–0.7	1		
2.4–2.5	3			0.4–0.5	2		2
2.2–2.3	–			0.2–0.3	1		1
2.0–2.1	1			0.0–0.1	7		1

*Lower Madeira, Codajás and Manacapuru, lower Purús.

Table 4 shows the distribution of individual scores for the whole sample combined, and also for the specimens from the 3 intermediate areas mentioned above. It is apparent that the scores cover almost the whole of the possible range, but there are few around the middle of the range. This is evident also for the sample from the area of intermediacy. It seems that there is both intergradation between the two types, and also a tendency for them to maintain their identities.

Discussion

The situation revealed by the analysis may be interpreted in more than one way. It seems most likely that it is the result of secondary contact between two populations, *hauxwelli* in the west and *fumigatus* in the east, and that the contact is fairly recent. It does not seem possible that the distribution of scores as shown in Table 4 could be produced unless individuals of either type tend to mate with birds of their own type. Possibly this tendency is reinforced by, or even solely due to, a tendency to prefer different habitats. If this is so, one may guess that *hauxwelli*-type birds prefer heavy primary forest and *fumigatus*-type birds lighter, more open forest. This would be in accordance both with prevailing forest types in their putative areas of origin (upper Amazonia with humid forest, eastern regions with more seasonal forests) and with the slight difference in wing-shape, a rounded wing-tip being associated with dense forest habitat and a more pointed wing with more open habitat in the genus as a whole.

With the data available this can be no more than a suggestion for future investigation. It would be especially desirable to carry out detailed field work in the area where both types occur, and to score the plumage and other characters of birds trapped in different kinds of forest and of known pairs. Vocalisations should also be studied, in particular alarm calls, which are probably less variable than songs and show marked interspecific differences in other groups of *Turdus* species.

As regards formal taxonomic treatment, the fact that *hauxwelli* appears to intergrade with *fumigatus*-type populations in the Mato Grosso area of Brazil and the upper Orinoco area, and that in the part of central Amazonia under consideration here individuals of all degrees of intermediacy occur (even though there is a distinctly bimodal distribution), indicates that the only practical course is to treat all populations as conspecific, at least pending further study. If this is done, there is every reason to include the very similar populations west of the Andes, again provisionally and pending further study.

Any attempt to reconstruct the distributional history of this group of forms must be highly speculative. Following Haffer (1974) one might suggest that *fumigatus* differentiated in a forest refuge in the east; but on the basis of present distribution it might be the Guianan, the Belém, or even the southeastern Brazilian refuge. The Guianan refuge is perhaps the least likely, since from this refuge one would expect populations to have spread further west in Venezuela than they have done. *hauxwelli* may have differentiated in an upper Amazonian refuge. It is unlikely that it can have recently spread into upper Amazonia from the trans-Andean forests where birds of similar type now occur, since the species is absent from the 2 areas which provide the easiest access from trans-Andean to Amazonian lowland forest, namely the lower Cauca and Magdalena valleys in the north and the low Andean passes in extreme northwest Peru.

It is unprofitable to speculate further on the distribution history of a single species such as this without taking into account other species with similar overall distribution patterns. For instance, a number of forest species extend along the Caribbean coast of Central America as far as western Costa Rica, as *T. fumigatus* does, and one would like to know whether this indicates a relatively recent extension into Central America and is associated with particular distributional patterns in South America. Similarly, several other species have similar populations in eastern Amazonia and (now isolated) in southeastern Brazil, and distinct populations in western Amazonia. It will also be necessary in attempting any historical reconstruction to take into account present constraints on distribution, which may not be obvious without detailed ecological study. A case in point is the apparent absence of *Turdus fumigatus* from the upper half of the Rio Negro. Possibly this has an explanation in the relative poverty of the forests along this black-water river (Janzen 1974), which may produce relatively poor feeding conditions for species that forage on the forest floor.

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A Late Pleistocene (Wisconsinan) avifauna from West Palm Beach, Florida

by Jonathan J. Becker

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The West Palm Beach local fauna was collected in 1969 from the western half of tract 17, block 1, plot 9 of Palm Beach Farms, Section 28, Township 43 S., Range 42 E., Palm Beach County, Florida (26°42′N, 80°10′W). Converse (1973) described the excavation of this locality and gave a preliminary faunal list of fish, amphibians, reptiles, and mammals. Radiocarbon dating of a mastodon rib from this site produced a date of 21,150 ± 400 years Before Present (Buckley & Willis 1972), which places it near the time of the maximum extent of the Wisconsinan glaciation. This date agrees with the presence of the late Rancholabrean mammalian species *Tapirus veroensis, Mammuthus jeffersonii* and *Bison antiquus* from this site.

This note describes the avifauna from this locality, specimens of which are deposited in the Florida State Museum (=UF) and the Pierce Brodkorb (=PB) Collection. Specimens used for comparisons are from both the latter collections and from the George C. Page Museum (Natural History Museum of Los Angeles County =LACM). No characters or comparisons are listed for a species if the fossil specimens do not differ significantly from the living members of the species. Anatomical terminology follows Baumel *et al.* (1979).

PIED-BILLED GREBE *Podilymbus podiceps.* UF 48047, distal end of left humerus. The transverse width of the distal end (6.85 mm) is well within the observed range of both males and females of this species as given by Storer (1976) and therefore it is not possible to sex this incomplete specimen. Extinct species of others of this genus are *Podilymbus wetmorei* Storer 1976 from the late Pleistocene Reddick local fauna, Florida and *P. majusculus* Murray 1967 from the Pliocene Hagerman local fauna, Idaho. The humeri of these 2 species are not known. However, *P. wetmorei* is more robust and *P. majusculus* is somewhat larger than *P. podiceps,* and it is unlikely that the West Palm Beach specimen could represent either of these palaeospecies.

GREAT BLUE HERON *Ardea herodias.* UF 48049, distal end of left tarsometatarsus.

AN EXTINCT STORK *Ciconia maltha.* L. Miller, 1910. UF 48043, distal end of right tibiotarsus; UF 48044, 48045, distal ends of 2 right tarsometatarsi.
These specimens are slightly larger than comparable elements from the Itchtucknee River (Campbell 1980) and from the Bradenton local fauna (Becker 1985).

WOOD STORK *Mycteria americana.* UF 48050, distal end of left tibiotarsus.
This specimen is similar in size to that of a large male *M. americana.* The fossil species *M. wetmorei* is larger and differs by having a proportionally wider distal end and a broader anterior intercondylar sulcus.

DABBLING DUCK *Anas* sp. UF 48046, distal end of right humerus.
I can find no consistent, distinguishing characters on the distal end of the humerus to separate the Mallard *Anas platyrhynchos,* the Mottled Duck *Anas fulvigula* and the American Black Duck *Anas rubripes,* and therefore have identified this element only to genus.

HAWK EAGLE *Spizaetus* cf. *grinnelli* (L. Miller, 1911). UF 49962, fragmentary proximal end of right tarsometatarsus.
This specimen differs from tarsometatarsi of *Haliaeetus leucocephalus* and *Aquila chrysaetos* by having a deeper fossa parahypotarsalis lateralis and a more distinct impressiones retinaculi extensorii; differs from the tarsometatarsus of the fossil species *Wetmoregyps daggetti* (L. Miller, 1915) by having the tuberositas m. tibialis cranialis more lateral, the sulcus extensoris and fossa infracotylaris dorsalis much less excavated, the fossa parahypotarsalis medialis larger and more excavated, and the impressiones retinaculi extensorii less elevated and farther apart; differs from the tarsometatarsus of *Amplibuteo woodwardi* (L. Miller, 1911) by being smaller in size, having the tuberositas m. tibialis cranialis less elevated, and the sulcus extensoris and fossa parahypotarsalis medialis more deeply excavated. The specimen agrees with the tarsometatarsus of *Spizaetus grinnelli* (L. Miller, 1911) in all the above characters, and differs from the tarsometatarsi of all species examined by having the crista plantaris mediana extending farther distad.

Four extinct species of *Spizaetus* have been described from North America. Three of these are poorly known: *Spizaetus pliogryps* (Shufeldt, 1891), based on 4 phalanges from the Pleistocene of Fossil Lake, Oregon; *S. willetti* (Howard, 1935), known from a distal tarsometatarsus from Smith Creek Cave, Nevada, and from a distal tarsometatarsus, distal ulna, and mandibular fragment from Howells Ridge Cave, New Mexico; and *S. tanneri* Martin, 1971 based only on a distal tarsometatarsus from the early Pleistocene of Broadwater, Nebraska. *S. grinnelli* (L. Miller, 1911), on the other hand, described from Rancho La Brea, is represented by over 1100 skeletal elements.

Two species of *Spizaetus* occur in the neotropics today—*S. ornatus* and *S. tyrannus*. Both are smaller than *S. grinnelli* (Howard 1932; her measurements are cited below). The breadth of the proximal end of the tarsometatarsus from West Palm Beach, estimated at 20 mm, falls within the range of *S. grinnelli* (16.8–21.7 mm) and is larger than that of *S. ornatus* (17.9–18.1 mm). Additionally, the distance from the proximal end to the middle of the tuberositas m. tibialis cranialis (West Palm Beach, 24 mm; *S. grinnelli,* 19.3–26.6 mm; *S. ornatus,* 21.3, 21.9) allows this species to be placed with *S. grinnelli.*

Considering the incomplete nature of the specimen and its differing hypotarsal morphology, I have only tentatively assigned this specimen to species.

CONDOR *Gymnogyps* sp. PB 7966, distal end of right humerus.
The transverse width of the distal end of this specimen (50.0 mm) is slightly larger than that of the recent California Condor *Gymnogyps californicus* (45.0–49.0 mm) and is within the range of the fossil *G. amplus* (46.4–54.6 mm), as given by Fisher (1947). As it is impossible to segregate all individuals of these 2 species on the basis of absolute size (Fisher 1947), I can only identify the West Palm Beach specimen to genus.

WHOOPING CRANE *Grus americana.* UF 48048, proximal end of left tibiotarsus.

The West Palm Beach local fauna is one of the southernmost Pleistocene avifaunas recorded in the United States. Only 2 other more southern Quaternary localities, the Holocene (pre–1900) Nichol's Hammock (Hirschfeld 1968) and the Monkey Jungle local fauna (Webb 1974; Ober 1978) of Rancholabrean age, have produced a microfauna that includes birds. Of the 8 avian taxa reported here, 4 (*Ciconia maltha, Gymnogyps* sp., *Spizaetus* cf. *grinnelli* and *Grus americanus)* are either extinct or have a distribution far removed from Florida today. *Spizaetus* is recorded here for the first time from a fossil deposit in the eastern United States.

Acknowledgements. I thank S. David Webb and B. J. MacFadden, Florida State Museum, Pierce Brodkorb, University of Florida, and the staff of the George C. Page Museum for making fossil specimens available for study. Brodkorb also made recent comparative material available. I especially thank P. Brodkorb, S. Emslie, G. S. Morgan and S. D. Webb for their comments on the manuscript.

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Scientific nomenclature and the style and lay-out of papers and of References should conform with usage in this or recent issues of the *Bulletin*, unless a departure is explained and justified; but informants of unpublished observations (usually given as *in litt.* or pers. comm.) should be cited by initials and name only, e.g. "... catches wasps (B. Eater)", but "B.B.C. Gull informs me that ...". Photographic illustrations, although welcome, can only be accepted if the contributor is willing to pay for their reproduction.

An author wishing to introduce a new name or describe a new form should append *nom., gen., sp.* or *subsp. nov.*, as appropriate, and set out the supporting evidence under the headings "Description", "Distribution", "Type", "Measurements of Type" and "Material examined", plus any others needed.

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The *Bulletin* is now being sent by Bulk Air Mail to all European destinations outside the British Isles and by Accelerated Surface Post to almost every destination outside Europe. This will only apply to copies despatched from the printers on publication. Those whose subscriptions have not been received by the beginning of a month of publication will have their copies despatched by surface mail, after their current subscription has been paid.

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Bulletin of the

British Ornithologists' Club

Edited by
Dr. J. F. MONK

JUL 10 1985

Volume 105 No. 2 June 1985

FORTHCOMING MEETINGS

Tuesday, 2 July 1985 at 6.20 p.m. for 7 p.m. in the Senior Common Room, South Side, Imperial College, Prince's Gardens, S.W.7 **Dr Brian Wood** of University College, London, who has been carrying out research in North Africa, will speak on **Waterfowl Conservation and Wetland Management in Tunisia and Algeria.** There will be a buffet supper and those wishing to attend should send their acceptance with a cheque for £4.80 a person to reach the Hon. Secretary at 2 Chestnut Lane, Sevenoaks, Kent TN13 3AR (telephone Sevenoaks [0732] 450313) not later than first post on Thursday, 27 June.

Tuesday, 24 September 1985 at 6.20 p.m. for 7 p.m. in the Senior Common Room, South Side, Imperial College, Prince's Gardens, S.W.7, **Dr Nigel Collar & Mr Simon Stuart** on their work on **Threatened Species in Africa.** Those wishing to attend should send their acceptance with a cheque for the cost of dinner, £7.70 a person, to reach the **Hon. Treasurer at 53 Osterley Road, Isleworth, Middlesex TW7 4PW (telephone 01 - 560 1019)** not later than first post on Thursday, 19 September. Dr Collar & Mr Stuart are the joint authors of the encyclopaedic "Threatened Birds of Africa and Related Islands (The I.C.B.P./I.U.C.N. Red Data Book, Part I)" published this year and have an outstanding knowledge in the field and of the literature regarding threatened African birds.

Tuesday, 19 November 1985. Mr Jeffery Boswall will show films at 6 p.m. in the British Museum (Natural History), Cromwell Road on **"The Little Whimbrel** *(Numenius minutus)* **in north-eastern Siberia", "The Siberian Spruce Grouse** *(Dendragapus falcipennis)* **in the Soviet Far East"** and **"The Ibisbill** *(Ibidorhyncha struthersii* **in Kazakhstan".** There will be a buffet supper at Imperial College at 7.15 p.m., after which he will speak on **"The Soviets and their Birds** – A rambling but reasonably accurate excursion into ornithology and bird watching, bird conservation and aviculture, falconry and birds as pests, all in the U.S.S.R.".

January 1986. Being arranged.

Tuesday, 4 March 1986. Mr A. J. Holcombe will speak on **Birds in Kenya.**

COMMITTEE

B. Gray (*Chairman*)
R. E. F. Peal (*Hon. Secretary*)
Dr. J. F. Monk (*Editor*)
D. Griffin
D. R. Calder

Revd. G. K. McCulloch, O.B.E. (*Vice-Chairman*)
Mrs. D. M. Bradley (*Hon. Treasurer*)
P. J. Conder, O.B.E.
S. A. H. Statham

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Income and Expenditure Account for the year ended 31st December 1984

	1984		1983	
	£	£	£	£
INCOME				
Subscriptions Received				
Members Subscriptions	2,619		2,604	
Subscribers	3,212	5,831	3,001	5,605
Donations Received		6		25
Investment Income				
Stevens Bequest Fund	153		152	
Deposit Interest	1,611		1,099	
Barrington Trust Fund	48	1,812	48	1,299
Rent Received				
Property Clovelly, Tring	1,686		1,560	
Less: Repairs and Insurance	64	1,622	77	1,483
Income Tax Recovered				
Deeds of Covenant	212		207	
Other	65	277	32	239
Sales of Bulletin—Back Numbers		983		2,419
		10,531		11,070
Meetings—Income	1,180		1,135	
Expenditure	1,230	(50)	1,199	(64)
		10,481		11,006
EXPENDITURE				
Printing and publication of Bulletin	4,402		4,343	
Separates	417		386	
	4,819		4,729	
Less: Author's costs	98		261	
	4,721		4,468	
Postage of Bulletin	891		514	
	5,612		4,982	
Publication and Distribution Costs re Current Issues of Bulletin				
Re-printing Bulletin back numbers	—		420	
Publicity Expenditure	206		125	
Printing, Postage and Stationery	359		338	
Telephone	32		32	
Insurance	43		57	
Notices of Meeting	78		52	
Audit and Accountancy Charges	90		90	
Miscellaneous Expenditure	54	6,474	51	6,147
Excess of Income over Expenditure		£4,007		£4,859

Balance Sheet as at 31st December 1984

	1984		1983	
	£	£	£	£
General Fund				
Balance at 31st December 1983	12,878		8,019	
Add: Excess of Income over Expenditure	4,007	16,885	4,859	12,878
Trust Fund—F. J. F. Barrington Legacy				
Balance at 31st December 1983		445		445
Stevens Bequest Fund				
Balance at 31st December 1983		2,256		2,256
		£19,586		£15,579
Represented by:–				
Stevens Bequest Fund Investment				
£2,101 10.25% Exchequer Stock 1995 at cost		2,019		2,019
Barrington Trust Fund Investment				
£880 5.50% Treasury Stock 2008/12 at cost		445		445
Current Assets				
Stock of Bulletin—Nominal Value	1		1	
Cash at Banks—Current Account	368		458	
Post Office Giro Account	757		545	
Deposit Account	5,061		4,351	
National Savings Bank	13,348		10,026	
	19,535		15,381	
Current Liabilities				
Subscriptions received in advance—Members	467		221	
Subscribers	343		354	
Sundry Creditors	1,603		1,691	
	2,413	17,122	2,266	13,115
		£19,586		£15,579

Accountants' Certificate

We have prepared the attached Balance Sheet and Income and Expenditure Account from the books, vouchers and information presented to us and certify that they are in accordance therewith.

Hereford House, Hereford Gardens,
Pinner, Middlesex HA5 5JR 19th March 1985

SEARLE AND COMPANY
Chartered Accountants

We approve the attached Balance Sheet and Income and Expenditure Account for the year ended 31st December 1984 and confirm that to the best of our knowledge all transactions relating to the Club have been recorded.

B. GRAY *Chairman*
DIANA BRADLEY *Treasurer*

20th May 1985

Bulletin of the
BRITISH ORNITHOLOGISTS' CLUB

Vol. 105 No. 2 Published: 20 June 1985

The seven hundred and fifty-eighth Meeting of the Club was held in the Senior Common Room, South Side, Imperial College, London, S.W.7 on Tuesday, 2 April 1985 at 7 p.m. The attendance was 28 Members and 20 guests.

Owing to the Underground strike expected to take place on Tuesday, 21 May 1985, the Meeting of the Club due to be held that evening had to be cancelled and we look forward to the presence of Mr W. H. M. Wilkinson as speaker at a later date.

ANNUAL GENERAL MEETING

On Tuesday, 21 May 1985 at 6 p.m. at Imperial College, Prince's Gardens, London, S.W.7 the Hon. Treasurer, Mrs Diana Bradley took the Chair and formally adjourned the Meeting until 6 p.m. on Tuesday, 2 July 1985 at the Senior Common Room, South Side, Imperial College, Prince's Gardens, London, S.W.7.

Members present were: B. GRAY *(Chairman),* P. J. BELMAN, K. F. BETTON, Mrs DIANA BRADLEY, P. A. BROWN, D. R. CALDER, R. D. CHANCELLOR, N. J. CROCKER, R. J. DOWSETT, J. H. ELGOOD, A. GIBBS, Revd. T. W. GLADWIN, D. GRIFFIN, P. HOGG, T. J. JAMES, R. H. KETTLE, J. KING, S. MARCHANT, Revd. G. K. McCULLOCH, Mrs AMBERLEY MOORE, A. G. MOORE, P. J. OLIVER, R. E. F. PEAL, P. S. REDMAN, Revd. Dr W. SERLE, S. A. H. STATHAM, N. H. F. STONE and C. E. WHEELER.

Guests present were: Mrs S. BETTON, D. BRADLEY, G. CLOAKE, Miss V. COX, M. DOUGLAS, Dr FRANÇOISE DOWSETT-LEMAIRE, Mrs SUSAN FUCHS, Mrs J. M. GLADWIN, Mr & Mrs J. B. HEIGHAM, Mrs CHRISTINE JAMES, R. LEACH, Mr & Mrs G. P. M. McCULLOCH, Miss I. E. M. McCULLOCH, Mrs I. M. McCULLOCH, A. J. RANDALL, Mrs HILARY TYE, J. VAUGHAN and Mrs C. E. WHEELER.

Dr Françoise Dowsett-Lemaire and Mr R. J. Dowsett spoke on A Survey of the Endangered Forest Birds of Malawi and illustrated their addresses with slides and sound recordings, using their considerable knowledge of the birds and of the habitats to make very clear what was involved. An abstract will appear in a future number of the *Bulletin.*

A new race of Audubon's Shearwater *Puffinus lherminieri* breeding at Moheli, Comoro Islands

by M. Louette & M. Herremans

Received 14 August 1984

Moheli, the smallest of the 4 main islands in the Comoro archipelago has a forested dorsal ridge, upon which is situated the "Chalet St Antoine II" at nearly 700 m asl. This is a cabin with a meteorological station, owned by R. Legrand of Miringoni, and graciously made available by him for the Second Belgian Zoological Expedition. During our stay, loud calls were repeatedly heard on the evenings of 6, 7 and 8 November 1983 which could be rendered as "tche-reh-tèè", 3-5 times consecutively, *ad nauseam.* The calls occurred after dark between c. 19:00 and 20:00, occasionally later at night and again before dawn, and were obviously uttered by nocturnal seabirds flying rather low over the vegetation. The birds, however, could not be seen well in the darkness and the steep-sided and forested surroundings, nor did they show themselves over the ridge or the chalet itself. What were without doubt the same calls had been heard already before at this locality by other members of the expedition on 29 and 30 September 1983 and over many years by R.

Legrand himself, who also informed us that he once picked up a seabird, about 9 November 1968, after it collided with the chalet. It can be assumed safely that the screaming behaviour on Moheli is related to breeding activities (cf Penny 1974, on the Seychelles). On the night of 9 November 1983, after a clearing had been cut through the vegetation downhill and north from the chalet, we were both looking for the birds when at 18:43 the first one arrived directly above us, circling at c. 10 m above the ground and repeatedly screaming as described above. The bird was shot, but it was found only the next morning after its head and neck had been partly eaten by a nocturnal animal. Several other birds were heard later that evening and again on the nights of 10 and 11 November.

The specimen belongs to the shearwater group of *Puffinus lherminieri* and *P. assimilis,* considered nowadays as different species (see Jouanin & Mougin 1979), of which the tropical races are all included in *lherminieri,* including the nominate race from the Caribbean, and called Audubon's Shearwater. *P. lherminieri* has not previously been found in the Comoros (Benson 1960), although there is an observation on 20 July 1970 at sea (13°S, 44°15′E, c. 80 km SE of Moheli) by Lofgren *(in* Bourne & Dixon 1975) attributed to it.

In the western Indian Ocean, Jouanin (1970) recognizes the race *bailloni,* with a completely white undertail, as breeding on the Mascarenes, whereas the Maldives, Seychelles, Amirantes and Aldabra are inhabited by the race *nicolae,* with mainly brown undertail coverts, the Seychelles population being smallest and those from Aldabra and the Maldives somewhat larger, tending in size towards the even larger *bailloni.* Both these subspecies possess a white underwing. M.L.'s measurements are given in Table 1, but for a larger sample see Jouanin (1970). The Moheli bird agrees with *nicolae* in its dark undertail coverts, but it is remarkable in having a darker "cloudy" underwing (Fig 1), which is also found, but to a lesser extent, in the race *persicus* of which there exist only very few specimens, and is not discussed by Jouanin. *P.l. persicus* occurs from Somalia to northwestern India, though the Indian birds may in reality belong to *nicolae* (W. R. P. Bourne). Breeding colonies have been discovered only recently on the Kuria Muria Islands near the Arabian peninsula (Gallagher & Woodcock 1980, Gallagher 1983). It is distinctly shorter tailed than the Moheli bird and also has apparently a finer bill: bill depth distal to the nostril in 2 specimens 6.5, 7 mm, whereas the Moheli specimen measures 8 mm, and *bailloni* and *lherminieri* c. 7-8 mm. However, different methods of preparation of skins make it difficult to take this measurement consistently in the same way. Nominate *lherminieri,* geographically still farther away, agrees best in measurements with the Moheli specimen, but it has a white underwing. However, on geographical grounds, if all these races belong indeed to one species, one would assume the Comoro population to be closest to *nicolae* or *bailloni,* not to *persicus* or *lherminieri.* It is however an isolate, with a unique combination of characters, viz. rather large size and cloudy underwing. The only other shearwaters with cloudy underwings in this group occur in the Pacific: in *dichrous,* of which M.L. measured several (only one with dark underwing, see Table 1); apparently in *polynesiae,* considered a synonym of *dichrous* by Jouanin & Mougin (1979) (several measured from French Polynesia but none of these very "cloudy"); and in the short-tailed *subalaris* from the Galapagos (see Murphy 1927 and Harris 1969, the latter indicating much variation in underwing colour).

Table 1. Measurements (in mm to nearest 0.5 mm) of *P. lherminieri* subspp.

Races, localities, catalogue-numbers ♂ = male; ♀ = female; o = unsexed		Wing chord	Tail	Tarsus	Middle toe with claw	Total culmen	Culmen from nostril
nicolae	Seychelles						
8 ♂♂ BMNH 1939.12.9.2966 MNHN 1878/1051, 1069; 1949/526; RNL 5951/1; 9701/4, 6, 7		187, 193, 189, 185.5 189, 195.5, 181, 193.5	75, 76, 75, 74, 73.5, 74.5, 75.5, 77	38.5, 37.5, 39.5, 35.5, 37, 38, 37, 38	42, 39.5, 41.5, 38, 40.5, 40.5, 42, 40.5,	26.5, 27.5, 27.5, 25.5, 27, 28.5, 26.5, 26	20, 21, 21, 20.5, 21, 22, 21, 20.5
3 ♀♀ MNHN 1878/1057; 1914/37 RNL 9701/5		185, 186.5, 189	67, 73, 74.5	37.5, 36, 39.5	39, 41.5, 44	26, 26.5, 29	20, 21, 22.5
1 o RNL 9701/2		197	78.5	37.5	43	28	22
	Laccadives						
1 ♂ RNL 6036		185	73.5	38.5	36.5	28.5	21
bailloni	Réunion						
6 ♂♂ MNHN 1966/2416, 2417, 2419, 2420, 2421, 2426		199.5, 198, 206, 205, 200, 204.5	76, 77, 79.5, 81.5, 74, 80	37.5, 38, 40, 40.5, 39.5, 40	43.5, 44, 44, 44.5, 44.5, 44	29, 31, 31, 29, 30, 29.5	22, 22.5, 23, 23, 22, 23
1 ♀ RNL 2		198	79	—	—	29.5	23
4 oo KBIN 58073; 60207; 60208; 60209		204, 203, 200, 205.5	79, 78.5, 74.5, 80	42, 40, 42, 38.5	42, 46, 43.5, 40.5	31, 29.5, 28.5 28.5	22, 23, 22, 22
	Mauritius						
1 o KBIN 10556		205	76	42	—	28.5	22.5
persicus	Somalia						
1 ♀ USNM 571356		197.5	70.5	40	42	32.5	25
	Aden						
2 ♂♂ BMNH 1962.9.2; 97.11.29.5		203, 213	74, 74	39.5, 40	45, 43	32.5, 31	25, 24.5

Oman						
1 o BMNH 1976.1.27	199.5	72	39.5	42	33	25.5
Mekran						
1 ♀ BMNH 91.5.20.871	197.5	69.5	38	42	—	—
lherminieri Caribbean						
4 ♂♂ KBIN 44333 MNHN 1952/689, 690, 693	198, 198.5, 198, 204	84.5, 84, 86, 84.5	40, 40, 41, 41	46, 45, 47, 46.5	29, 28.5, 29.5, 29	23, 24, 23.5, 23
2 ♀♀ KBIN 44331 MNHN 1952/691	206, 206	91, 94	40.5, 41.5	43, 46.5	31, 28.5	25, 23
boydi Atlantic near Cape Verde						
1 ♂ RNL 5147	182	78.5	38	40.5	—	21
dichrous Marquesas						
1 ♂ MNHN 1976/252	194	84.5	37.5	40	26.5	21
3 ♀♀ MNHN 1976/249, 250, 251	197.5, 199, 187	77, 81.5, 82	39, 38.5, 36.5	39, 37, 37.5	27.5, 27.5, 26	21, 22, 21
3 oo RNL 7; 1/6; 3/8	209, 207, 197	79, 84.5, 81.5	37, 38, 38.5	42.5, 41, 43	27.5, 26.5, 26	21.5, 22, 21
"polynesiae" French Polynesia						
7 ♂♂ MNHN 1966/1826, 1827; 1967/101, 105; 1969/ 308, 309	195, 197, 192, 189, 196, 195, 192	80, 82, 78.5, 76 82.5, 80, 80	41, 42, 41, 38, 39, 40, 39	41, 44, 40, 42, 42.5, 41, 39	28, 26.5, 28, 26.5, 27.5, 27, 27	22.5, 21.5, 22.5, 21, 22.5, 22, 21.5
temptator Moheli						
1 ♂ KMMA 83.43.A.756	>(203)	86	40.5	43	(31)	23.5

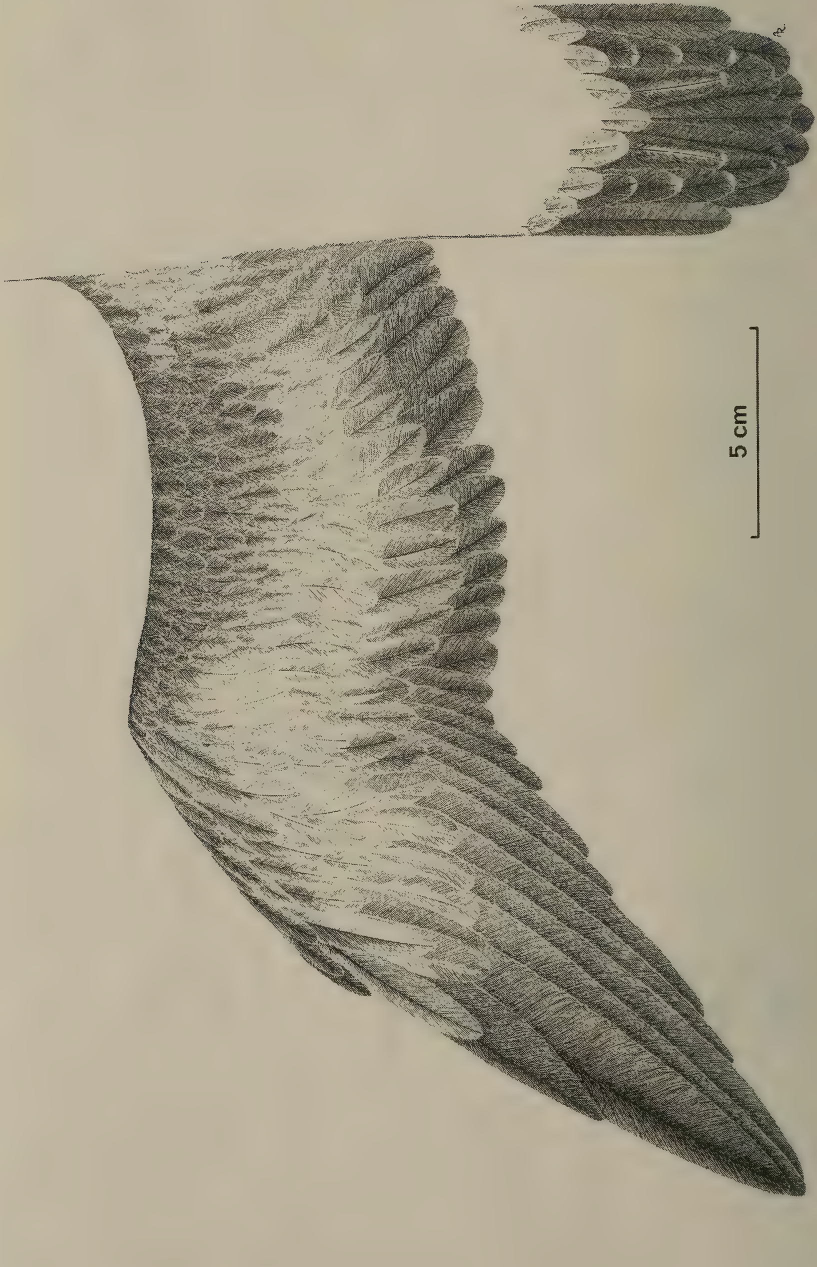

Figure 1. Right underwing and undertail of *P.l. templator* (subsp. nov.).

Although the first 2 of these Pacific races generally also possess rather long tails, they all have smaller bills and our specimen cannot possibly be united with them.

The Moheli specimen is moulting the outermost primary. In the other races this primary, or more rarely the second, is found to be the longest, whereas the wing-chord measured on the Moheli bird is obtained from the third outermost primary. The difference between the longest and the third is found to vary from 6.5 mm to as much as 14 mm in *bailloni, nicolae* and *persicus.* It must be assumed therefore that actual wing-chord could be several mm longer than the 203 mm measured in our Moheli specimen. (Incidentally, the fact that a bird screaming in the neighbourhood of its nesting hole is replacing its final (outermost) primary seems to indicate that it was about to start breeding – see Harris 1969 on Galapagos birds.) We are convinced there is enough evidence to name the Moheli specimen

Puffinus lherminieri temptator subsp. nov.

Description. General colour dorsally black, fading gradually to brownish black during the months after collection. Crown and sides of head also black with a few whitish feathers in the region above the eye towards the bill. The whole underside, starting from a line approximately through the eye, white. Sides of breast and upper flanks dark blackish. Undertail coverts white (shortest) and black with whitish tips (longest). Underwing coverts white with dark points (''cloudy'') and leading edge dark (Fig 1). No other specimen examined is so dark under the wing. Axillaries dark.

Distribution. Only known from the ridge of Moheli Island. Several observations in Comoro waters of similar birds refer probably to this population (see Draulans *et al.* in press). Similar habitat on nearby Anjouan (Gouniyagnombé) prospected for several nights (24-28 October 1983), was at that time unoccupied by shearwaters.

Holotype. No. 83-43-A-756 in Koninklijk Museum voor Midden-Afrika, Tervuren, Belgium. From near Chalet St Antoine II, Moheli, Comoros at 12° 17'S, 43° 40'E at c. 670 m asl, 9 November 1983. Dried after formalin injection.

Measurements of holotype. Wing (chord) 203 mm (but outermost primary only half grown, actual chord probably several mm larger, see above); tail 86 mm; tarsus 40.5 mm; middle toe with claw 43 mm; total culmen 31 mm (but nostrils almost completely destroyed so that this measurement is possibly inaccurate); culmen from nostril 23.5 mm; depth of bill at nostril 8 mm. Weight on 10 November: 175 g.

Colours of soft parts. Legs bicolored: outer side of tarsus and toes black, inner side bluish flesh (respectively 3/0 and 8/0 in Munsell 1954). Inner toe of right leg missing due apparently to congenital deformity. Bill: bluish grey (7.5 y R 7.5/0) in Munsell (1954). Iris: dark, circled pale blue.

Etymology. It is said that St Anthony was subject to many temptations.

Material examined. All available specimens of *Puffinus lherminieri* and *P. assimilis* were examined in the Muséum National d'Histoire Naturelle, Paris (MNHN), the Rijksmuseum voor Natuurlijke Historie, Leiden (RNL) and the Koninklijk Belgisch Instituut voor Natuurwetenschappen, Brussels (KBIN); one *persicus* was received on loan from the Smithsonian Institution, Washington (USNM) and 4 *persicus* and one *nicolae* from the British Museum (Natural History), Tring (BMNH). Specimens measured for this study appear in Table 1.

Voice analysis. Several recordings of the screams mentioned above were made near St Antoine and 3 types are rendered in Fig 2. A weak recording, made by Jadin & Billiet (1979) on Réunion was also studied. Structurally, to our ears, both races seem to utter rather similar sounds. The race *bailloni*'s scream is however lower pitched (about 400 Hz) and both syllables appear to be longer and more separated, making a phrase lasting about 50% longer than in the *temptator* records. The variation found in *temptator* may be due to sexual or other individual difference and therefore detailed comparison with *bailloni* must be postponed until more recordings of several individuals become available.

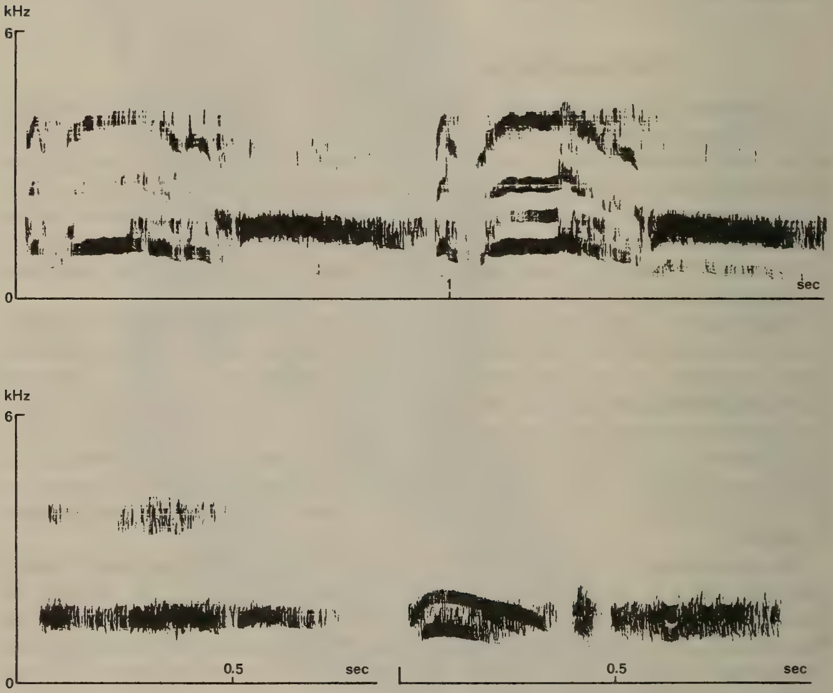

Figure 2. Sonagram of 3 types of call of *P.l. temptator,* type 1 also showing time between phrases.

Acknowledgements: The Second Belgian Zoological Expedition to the Comoros was partly sponsored by a ''Nationaal Fonds voor Wetenschappelijk Onderzoek'' grant to M.L. We are indebted to the Comorian authorities for permits and to R. Legrand who so enthusiastically helped us while on Moheli. The tape from Réunion was made available by Mrs F. Billiet. The analysis on sonagraph KAY was made by M. Lambrechts, through the courtesy of Prof. Dr A. Dhondt, Universitaire Instelling Antwerpen. Dr C. Jouanin examined the type specimen and Dr W. R. P. Bourne and M. D. Gallagher most kindly gave their advice. The Museum material was examined or borrowed thanks to the following curators: Dr A. Prigogine (KBIN), Dr G. Mees (RNL), Dr C. Erard (MNHN), Dr S. Olson (USNM), M. P. Walters (BMNH).

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Notes on some Brazilian seabirds

by Dante Martins Teixeira, Jorge B. Nacinovic & Ronaldo Novelli

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In the last decade we have accumulated some observations on Brazilian seabirds, based mainly on specimens deposited on beaches by bad weather. In addition, study of the little seabird material available in Brazilian ornithological collections surprisingly has revealed a number of misidentifications, some of them already absorbed into the South American ornithological literature. Thus, it seems to be necessary to clear up the existing mistakes and also to comment on the new data obtained. For specimens in Brazilian ornithological collections we have used the initials MN (Museu Nacional) and MZUSP (Museu de Zoologia da Universidade de São Paula) with the respective catalogue number of each institution.

GREY-HEADED ALBATROSS *Diomedea chrysostoma*

In Brazil recorded only off the coast between São Paula and Santa Catarina (24°-27°S –*fide* Sick 1979). However, we obtained a specimen (MN 33293) from Barra da Tijuca, Rio de Janeiro (c. 23°S) in September 1983.

GREAT-WINGED PETREL *Pterodroma macroptera*

Blake (1977) noted that South American records of this species are erroneously credited to *Pterodroma brevirostris* in many works (Pinto 1938, 1964, 1978, Meyer de Schauensee 1966, etc). Apart from sight records, the occurrence of the Great-winged Petrel in Brazil seems to be based on 2 skins from Santos, coastal São Paulo (c. 24°S; *fide* Pinto 1938, Meyer de

Schauensee 1966, 1982, Blake 1977). A re-examination of both specimens (MZUSP 11118 and 13003) revealed that they are actually *Puffinus griseus.* Thus, the range of the Great-winged Petrel in Brazilian waters seems to be reduced to sparse sight records off the coast between Rio Grande do Sul and Santa Catarina, and off Rio Grande do Norte (*fide* Watson *et al.* 1971).

BLUE PETREL *Halobaena caerulea*

In South America this species is recorded as a common seasonal visitor in the Cape Horn area (Blake 1977), and casual off the coast of Peru (Meeth & Meeth *in* Harrison 1983), Chile, Argentina and Uruguay, north to around 30°S, during the austral winter (Murphy 1936, Meyer de Schauensee 1982, Harrison 1983). It has not hitherto been recorded from Brazil. We obtained 2 specimens (MN 33355, 33356) from Buzios, Cabo Frio (c. 23°S) in July 1984. Both birds were stranded on the beach, still alive, by the strong SW winds that blow along the SE Brazilian coast during the winter.

DOVE PRION *Pachyptila desolata*

In Brazil recorded only from Santos, São Paulo (*fide* Pinto 1938, 1964, 1978, Meyer de Schauensee 1982). We obtained specimens of this prion respectively from Praia do Cassino (MN 33352), county of Rio Grande, Rio Grande do Sul (c. 32°S) in June 1982, and from Barra da Tijuca, Rio de Janeiro (MN 33357) in July 1984. In both cases, the birds were deposited on the beach during storms, together with a great number of Slender-billed Prion *Pachyptila belcheri.* Such mortality can be very heavy; we recorded corpses of *Pachyptila* along a stretch of c. 180 km of coast, from Buzios to Rio de Janeiro, within a period of 4 days in July 1984.

SOOTY SHEARWATER *Puffinus griseus*

Recorded by Belton (1973) from Rio Grande do Sul, southern Brazil; also occurs on the coasts of São Paulo (see the note on *Pterodroma macroptera* above) and in Barra da Tijuca, Rio de Janeiro, from where we obtained 2 specimens (MN 33279 and 33358) in July 1983 and 1984.

BAND-RUMPED STORM-PETREL *Oceanodroma castro*

The occurrence of this species in South America is apparently based on a single specimen (MZUSP 13804) from Angra dos Reis (c. 23°S), Rio de Janeiro (*fide* Pinto 1938, 1964, 1978, Blake 1977). However, a re-examination of this skin revealed that it is in fact *Oceanodroma leucorhoa.* The same mistake was noted by Watson (*in* Meyer de Schauensee 1966) for the supposed *O. castro* recorded from the Amazonas mouth (Snethlage 1914). The occurrence of *O. castro* in South American waters is possible, but apparently there are no substantiated records which support its inclusion in the Brazilian avifauna.

RED-BILLED TROPICBIRD *Phaethon aethereus*

In Brazil this species nests on islands off the coast, such as Fernando de Noronha and Abrolhos, southern Bahia (c. 18°S), and has also been recorded off the coast of Maranhão (Pinto 1978). In March 1984 we recorded an adult on the coast of Cabo Frio, Rio de Janeiro. This appears to be the most southerly record known for this species in the Atlantic.

SOOTY TERN *Sterna fuscata*

Nests on islands off the Brazilian coast (Fernando de Noronha, Atol das Rocas, Abrolhos) and is recorded along the coast of Amapá south to the mouth of the Amazonas. We saw 2 individuals in Guanabara Bay, Rio de Janeiro, in April 1977. Mainly pelagic, this species is evidently accidental in such southern waters, since it has not been observed again in Rio de Janeiro in subsequent years.

Acknowledgements: We would like to thank Eduardo Gasparian for the information and specimens he gave us. We also thank the Conselho Nacional de Desenvolvimento Cientifico e Tecnologico (CNPq), which partially supported our studies on Brazilian birds.

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Mouth size in *Macrodipteryx* and other African nightjars

by H. D. Jackson

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In seeking diagnostic characters for satisfactory identification of the nightjar species of Africa and its islands, I recently (Jackson 1984a) measured various features of a substantial number of nightjar specimens. It soon became apparent that there was little point in measuring the culmen of a nightjar and that a more meaningful measurement would be that of the tomium. Tomium measurements proved to be much less variable than culmen measurements, the coefficient of variability (c. of v.), i.e. the standard deviation as a percentage of the mean (Mayr *et al.* 1953), ranging from only 3.6 to 6.7 for the tomium as opposed to 7.5 to 14.8 for the culmen. The standard bill measurement for nightjars should therefore be tomium rather than culmen.

The measurement of the gape (c. of v. 5.3 to 12.0) also proved to be extremely useful, for the product of these 2 parameters (tomium x gape) provides a rough measure of the overall size of the mouth when wide open, or, in more practical terms, of the area of aerial scoop available for capturing prey. Using the mean measurements in Jackson (1984a) it is immediately apparent that the 2 *Macrodipteryx* species have remarkably small mouths, the tomium x gape product being only 520 and 548 for *M. longipennis* and *M. vexillaria* respectively, while *Caprimulgus donaldsoni,* Africa's smallest nightjar, has a product of 654. The product for *C. tristigma,* which is of a body size comparable to *M. vexillaria,* is 1046 or almost double that of *M. vexillaria.*

Using wing length as a measure of the bird's size, Fig. 1 shows the relative mouth sizes of the 22 species of nightjar known to occur in Africa and its islands. It shows that the *Macrodipteryx* spp. are indeed the smallest mouthed

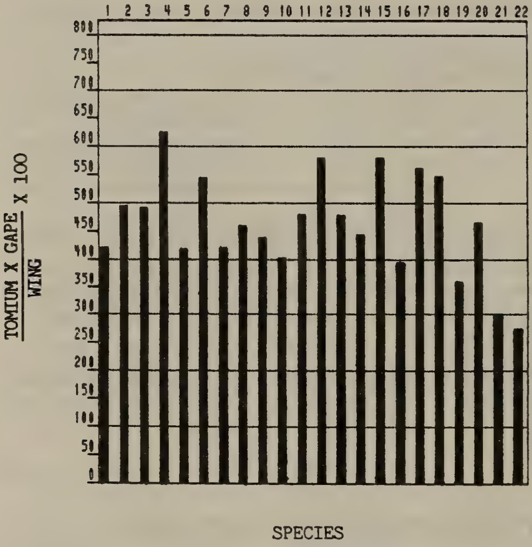

Figure 1. Mouth size (tomium x gape) in relation to wing length (9th primary, numbered from innermost) for the nightjars of Africa and its islands, based on measurements in Jackson (1984a). The species are 1) *Caprimulgus aegyptius,* 2) *C. batesi,* 3) *C. donaldsoni,* 4) *C. enarratus,* 5) *C. europaeus,* 6) *C. eximius,* 7) *C. fossii,* 8) *C. fraenatus,* 9) *C. inornatus,* 10) *C. madagascariensis,* 11) *C. natalensis,* 12) *C. nubicus,* 13) *C. pectoralis,* 14) *C. poliocephalus,* 15) *C. ruficollis,* 16) *C. rufigena,* 17) *C. stellatus,* 18) *C. tristigma,* 19) *Scotornis climacurus,* 20) *Veles binotatus,* 21) *Macrodipteryx longipennis,* 22) *M. vexillaria.*

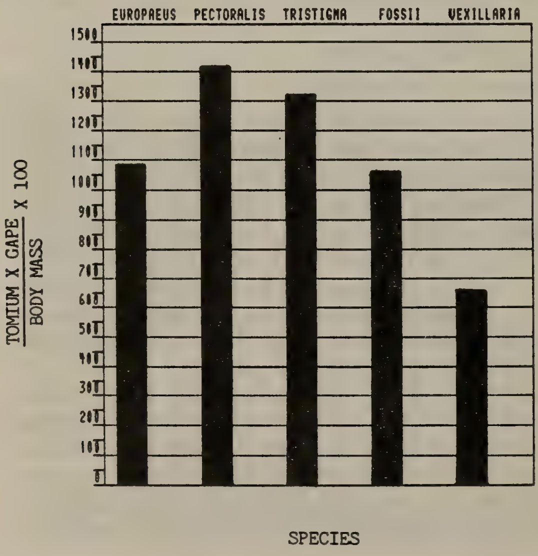

Figure 2. Mouth size (tomium x gape) in relation to body mass for the nightjars of Ranelia Farm, Mutare, Zimbabwe, based on measurements in Jackson (1984a) and weights in Jackson (1984b).

of the lot, while *C. ennaratus* is the largest mouthed. It may be argued that wing length is not a reliable guide to the bird's size, as migrant species tend to have longer wings than resident species, and that body mass would provide a better measure. Weights are unfortunately not available for all the species concerned, but weights for the 5 species occurring in my study area on Ranelia Farm, 50 km south of Mutare, Zimbabwe (Jackson 1984b) are used in Fig. 2, which again emphasises the very small mouth of *M. vexillaria.*

An explanation for these differences in mouth size must be sought in the feeding habits of the species concerned. *M. vexillaria* has a tendency to forage earlier in the evening than most other nightjars. As the light is then better, homing visually onto a target will be more precise and a smaller trap may suffice. However, it would appear that *M. longipennis* does not come out to feed until dusk is advanced (Fry 1969) so this explanation would not fit both species.

While the foraging techniques of African nightjars may vary, one method of prey capture is common to all species; prey is taken on the wing by engulfing it in the open mouth. It is postulated, therefore, that there may be a direct correlation between mouth size and prey size in African nightjars. Stomach contents that I have examined suggest that *M. vexillaria* specialises in termite alates, in contrast to *C. tristigma,* which takes moths and beetles. Chapin (1916) noted the predilection of *M. vexillaria* for termites and argued that "the real cause of their migration . . . may very possibly be traced to their appetite for these particular insects". Many years later, Chapin (1939) again noted the predominance of winged termites in the stomach contents of 18 *M. vexillaria* specimens, and remarked that "While beetles were present in thirteen cases, they were usually few in number and mainly of small size". He also recorded 15 *small* hemiptera, 7 *small* grasshoppers, some winged ants, 4 leaf-hoppers, 2 *small* cicadas, 3 roaches, a *small* mantis, an earwig, and a moth (italics mine) and concluded that "the average dimensions of insects eaten by pennantwings are not great . . .".

Chapin's (1939) examination of *M. longipennis* stomach contents produced similar results: "Eleven out of sixteen stomachs held beetles, often in numbers, while nine stomachs contained *small* hemiptera, equally numerous. The other insects devoured included 11 *small* grasshoppers, 6 moths, 6 winged driver ants, 4 other winged ants, 7 leaf-hoppers, a few *small* Hymenoptera, 2 *small* flies, 2 *small* cicadas, and one earwig. Winged termites filled two stomachs, and one mosquito was seen in a bird's throat, as well as an ant with jaws buried firmly in the flesh". (Italics mine).

It is clear from Chapin's records that the *Macrodipteryx* spp. feed mainly on small insects, as would be expected from my postulate. However, a proper quantitative study is needed on the other species before any conclusions can be drawn. It would be particularly interesting to know what are the feeding habits of *C. enarratus.*

Acknowledgements: This work formed part of an M.Sc. thesis submitted to the University of Natal, Pietermaritzburg (Jackson 1983). I am grateful to my supervisors, Dr S. J. M. Blaber and Prof G. L. Maclean, for their help and to the National Museums and Monuments of Zimbabwe for continued support. The many museums that provided material for measurement have been acknowledged in Jackson (1984a).

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History, distribution and origin of Barn Owls *Tyto alba* in the Malay Peninsula

by Graham M. Lenton

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Prior to 1968 the Barn Owl *Tyto alba* was considered an occasional vagrant in the Malay Peninsula, only 4 records being available and of these only 3 can be considered positive. One specimen was taken near Kuala Kangsar, Perak by Kelham in 1881, and 3 from Singapore Island, 1889, 1931 and 1925 (Gibson-Hill 1949 and unpublished information). The 1931 specimen was a purchased skin and therefore of doubtful provenance. The 1925 specimen is in the collection of the British Museum of Natural History, Tring, the other 2 at the Zoology Department Museum, University of Singapore.

In 1968 a pair was discovered roosting in the roof space of an oil palm estate house at Fraser Estate, Kulai (1°40′N, 103°36′E) in the southern state of Johor. The following year, in April 1969, 2 pairs were reported, at the same site, nesting in the roof spaces of 2 adjacent houses (Wells 1972). In February 1970 a Barn Owl was involved in a bird strike with an R.A.F. VC-10 at Changai Airbase, Singapore.

Since then anecdotal reports of Barn Owl sightings and nesting have been increasing, and from 1976 to 1978 these birds were found in oil palm plantations widely throughout the Malay Peninsula with a concentration towards the south and southwest, particularly in Johor State (Lenton 1984).

Present distribution

To ascertain the present distribution of *Tyto alba* in the Malay Peninsula a variety of methods was employed. Questionnaires were sent to all oil palm, rubber and tea estates in the Peninsula and notices and articles were placed in national newspapers and natural science journals requesting information.

Response was limited and biased towards plantation habitats, but by personal follow-up of all replies, further sites were located and over a $2^1/_2$-year period a distribution map was drawn up (Fig. 1). It is clear from the map that Barn Owls are more common at low altitudes (below 150 m) and along the southwestern plains of the Peninsula, although other nests and occasional sightings were recorded towards the northwest on Penang Island, together with a personal sighting of 2 birds in the centre of the Peninsula at Gua Musang (4°50′N, 101°55′E), Ulu Kelantan (100 m elevation). In September 1978 a record of "some" birds at Kuala Terengganu (5°22′N, 103°08′E), on the east coast, was reported and a photograph of one specimen supported the statement, although no further information for that area was obtained during the study period.

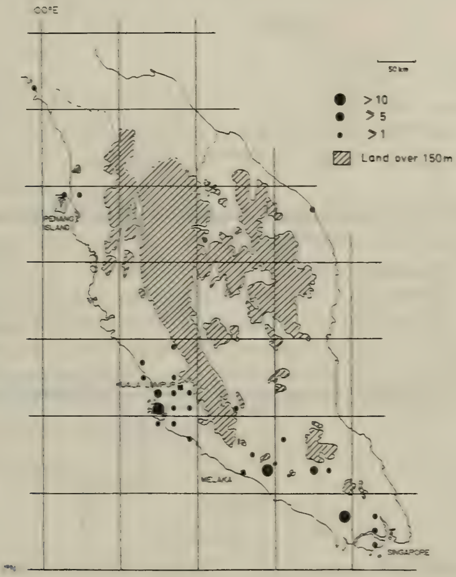

Figure 1. Distribution of nest sites and individual sightings of Barn Owls *Tyto alba* in the Malay Peninsula. Dots are placed in the centre of 20 km squares. The grid is 100 km x 100 km.

On 2 occasions in 1973 and 1974 Holmes & Wells (1975) sighted Barn Owls just over the Perlis border in the Satun Province of Thailand (c. 6°40′N, 99°55′E).

At present Barn Owls have a nesting and roosting preference for oil palm, and only 6% of birds were found in other habitats. The bias towards oil palm is almost certainly due to the superabundance of rats infesting the plantations and is reflected in the analysis of the oral pellets showing that 98% of the diet consisted of the rat species which exploit this habitat (Lenton 1984).

Origin

The previous virtual absence of *Tyto alba* from the equatorial zone of South East Asia poses the question whether the present population of the Malay Peninsula has a northern or southern hemisphere origin, or whether both elements are involved.

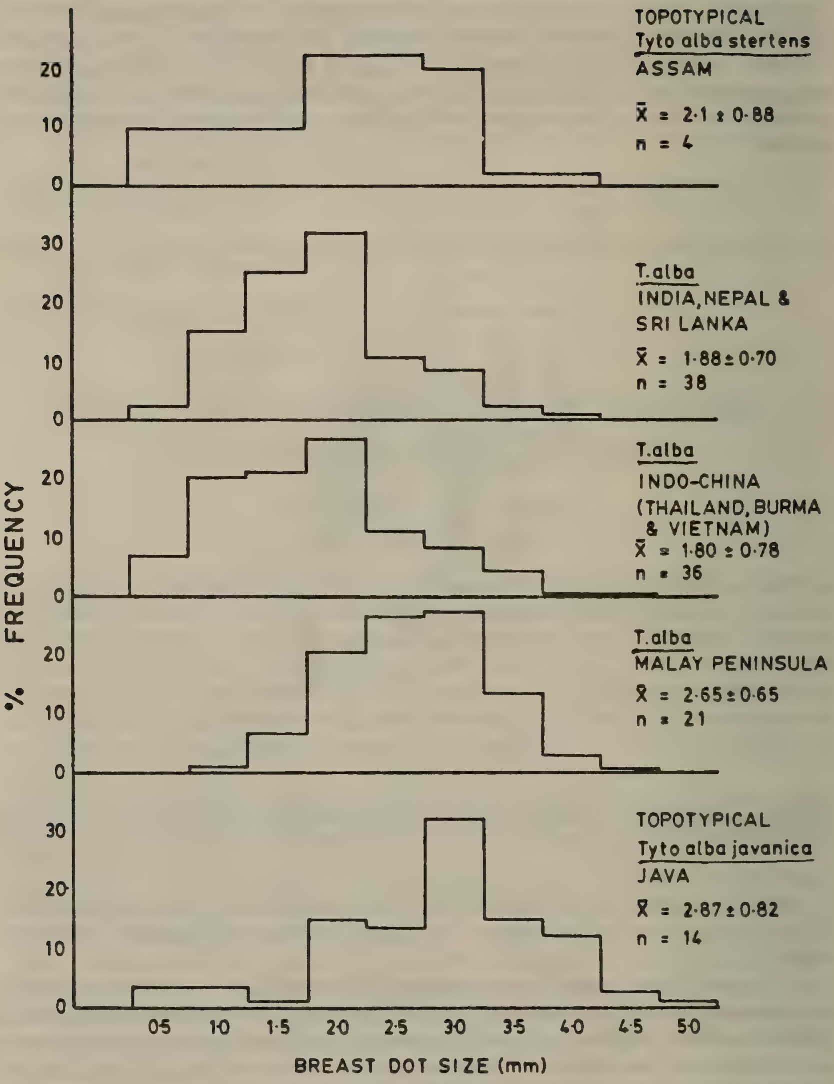

Figure 2. Frequency distribution of breast dot size in *Tyto alba* for 5 regions of Asia. Confidence limits are given to one standard deviation.

113 skins from India, Nepal, Sri Lanka, Burma, Thailand, Vietnam, Java and the Malay Peninsula were analysed for taxonomic evidence. 4 topotypes of *Tyto alba stertens* from lowland Assam, plus 38 others from all parts of India, Nepal and Sri Lanka were examined. Similarly 14 topotypes of *T.a. javanica* from Java were compared with 21 specimens from the Malay Peninsula, 20 from Thailand, 8 from Burma and 8 from Vietnam. The following parameters were measured:

1. Wing length – maximum flattened chord.
2. Tail length – maximum flattened length.
3. Number of dark bars on central tail feathers and distance between centre points of bars.
4. Breast dot density and breast dot size.
5. Size of apical dot of sixth primary feather.
6. Bill width at nares.
7. Left claw lengths.

Differentiation between populations from the north and south was apparent with 3 parameters – breast dot size and density and the apical dot size of the 6th primary feather. All 3 varied parallel with each other and the mean breast dot size was investigated in more detail.

Only some breast feathers have dots and these vary in size from feather to feather. Mean breast dot size and dot density were estimated by curving a cardboard quadrat 50 x 50 mm onto the breast region and making a total count of all dots within the quadrat. The 10 most central dots were then measured to estimate mean dot size. Dot sizes for regional samples were then pooled and a mean calculated. Fig. 2 shows mean figures and variation in dot size for the 2 topotypes and associated populations. A more detailed exposition of breast dot size appears in Fig. 3 where the values for local populations within the main sample regions are displayed.

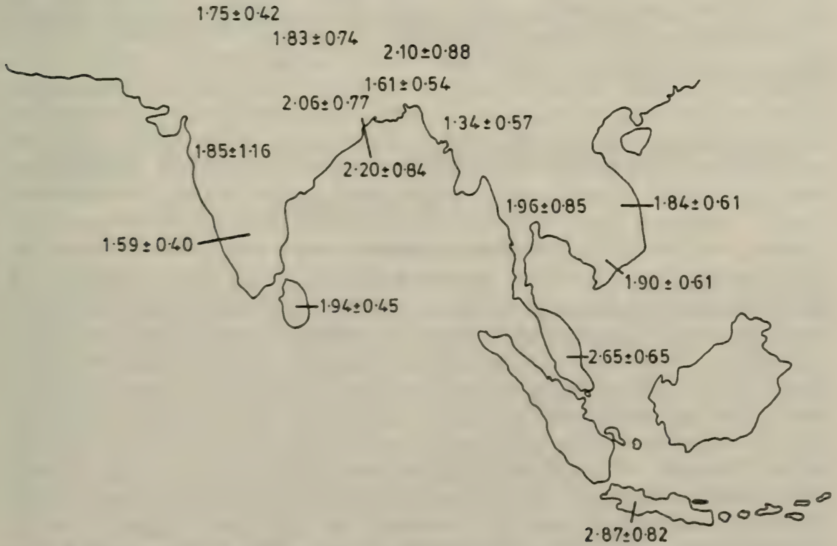

Figure 3. Detail of breast dot size in *Tyto alba* for various regions of Asia. Confidence limits are given to one standard deviation.

It is clear from Fig. 2 that mean breast dot sizes for the Indian and Indo-Chinese subregions are smaller ($x = 1.88 \pm 0.70$, $x = 1.80 \pm 0.78$) than those for Java ($x = 2.1 \pm 0.82$) although the Assam topotype is somewhat larger ($x = 2.1 \pm 0.88$) than the rest of India. However, the sample available for Assam was small and shows wide variation in breast dot size (range 0.5 – 4.0 mm). The values for India, including Assam, and Java were compared using a 't' test and were shown to be significantly different ($p < 0.001$). The mean dot size of the Malay Peninsula birds ($x = 2.65 \pm 0.65$) falls much closer to the Javan sample and is significantly different from both the Indian and the Indo-Chinese samples ($p < 0.001$).

Thus the population of *Tyto alba* in the Malay Peninsula more closely resembles birds from Java, in terms of breast dot size, than those from the north in the Indian and Indo-Chinese subregions. It is suggested therefore that the present population of *Tyto alba* in the Malay Peninsula has originated from Java, a probability that is supported by the southern distribution of these owls in the Peninsula.

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Fossil birds from Mangaia, southern Cook Islands

by David W. Steadman

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Although Mangaia (21°55′S, 157°57′W) is the second largest of the Cook Islands, published knowledge of its bird life has been meagre, hitherto being restricted to that found in Holyoak (1974, 1976a, 1980). Early missionaries and linguists have noted certain birds on Mangaia (e.g. Gill 1894, Christian 1920, 1924, Te Rangi Hiroa 1934, 1944, Savage 1980), but until the time of my visit the only ornithological research on Mangaia was Holyoak's single day there (24 August 1973), highlighted by the collection of 2 new endemic species, namely a kingfisher *(Halcyon mangaia)* and a sylviid warbler *(Acrocephalus kerearako).* To initiate a long-term study of the palaeontology, systematics and distribution of vertebrates in the Cook Islands, I visited Mangaia from 26 March to 18 April 1984. An account more detailed than the present awaits further field work.

Mangaia, 20 sq miles (5180 ha), maximum elevation 170 m, has an average annual rainfall of c. 2 m (Survey Dept, Rarotonga 1983). It is a fairly remote island: to the east, the nearest land is Iles Maria of the Austral Group, c. 290 km away; c. 180 km to the west is Rarotonga; c. 185 km to the north are Atiu and Mauke of the Cook Group, while to the south there is no significant land until Antarctica, over 3000 km away.

The most outstanding topographical and geological feature of Mangaia is a ring of limestone 30-60 m high, known as the ''makatea'', that surrounds the entire island and encircles the highly weathered and eroded volcanic uplands (Marshall 1927, Chubb 1927). The outer rim of the ''makatea'' is not as steep as the inner rim, which forms a sheer vertical cliff. Between the ''makatea'' and the volcanic hills is a low-lying area dominated by cultivated swamps of the aroid ''taro'' *Colocasia esculenta.* Now exposed through renewed uplift of the island during the past several million years, the ''makatea'' represents an ancient (late Tertiary) coral reef that grew during the long period of subsidence following the volcanic formation of Mangaia c. 19 million years ago (Turner & Jarrard 1982).

The ''makatea'' is penetrated by numerous caves. A small sample of avian fossils from Te Rua Rere Cave in the Tava'enga District, the first vertebrate fossils from the Cook Islands, were collected in 1983 by Gustav Paulay, whose cooperation stimulated my fossil-collecting there. Te Rua Rere Cave was by far the most productive site, but I collected smaller numbers of fossils from 3 caves in the Ivirua District (Ana Kakai, Te Rua O Ngauru and Toruapuru) and from 2 caves in the Tamarua District (Tapukeu and Tautua). All the fossils were merely lying on the surface of the caves' floors. Two small test pits that I dug in Te Rua Rere Cave were unfossiliferous, but further excavation is planned. Many of the fossils were lying next to bones of similar preservation of the Pacific Rat *Rattus exulans,* brought to Mangaia by Polynesian man, whose skeletons were also lying on the surface. Like other of the southern Cook Islands, Mangaia was settled by Polynesians c. 1000 years ago (Bellwood 1979: 348). Nevertheless, it is difficult or impossible to prove contemporaneity of fossils lying side-by-side on top of, and not within, the sediments of a cave (Steadman in press). The degree of mineralization of the Mangaian fossils varies, but generally is low. Likewise, the amount of calcitic accretion on the fossils is variable, but this is so dependent upon rate of percolation of calcite-charged water (which varies greatly within each cave) that it cannot be considered a safe measure of relative age of the fossils. There is no reason to believe that any of the fossils pre-date the Holocene, and probably all or nearly all are only hundreds or at most several thousands of years old.

The breeding avifauna of Mangaia (Table 1) now stands at 18 species for which specimens have been collected, 9 of them known only from fossils and which almost certainly became extinct within the past 1000 years. Most of the Mangaian species (or very closely related congeners) occur elsewhere in Oceania, but several of them are undescribed forms that probably were endemic. Of the 9 extant breeding species, only 2 *(Egretta sacra* and *Anous stolidus)* were not recorded as fossils. Their absence as fossils may be due to the small size of the fossil collection or may be based upon some aspect of their biology. Except for *Rattus,* the only non-avian fossils were of a fruit bat *(Pteropus* sp, ''moa kirikiri'') and a gecko *(Gehyra oceanica,* ''moko karara''), both of which are common on Mangaia today.

	Recorded in 1973 (Holyoak 1974, 1980)	Whole specimens; 26 Mar – 18 Apr 1984	Fossils from caves
**Pterodroma* sp. (small)	—	—	X
Puffinus sp. (small)	—	X	X
**Nesofregetta fuliginosa*	—	—	X
Phaethon rubricauda	X	X	X
Phaethon lepturus	X	X	X
Egretta sacra	X	X	—
Anas superciliosa	X	X	X
**Porzana* sp. (small)	—	—	X
**Porzana* new sp. (large)	—	—	X
**Gallirallus* new sp.	—	—	X
Anous stolidus	X	X	—
Gygis alba	X	X	X
**Gallicolumba* sp.	—	—	X
**Ducula* cf *galeata*	—	—	X
**Ptilinopus* sp.	—	—	X
**Vini* cf *kuhlii*	—	—	X
Halcyon mangaia	X	X	X
Acrocephalus kerearako	X	X	X
Totals	8	9	16
Number extinct	—	—	9

Total number of species from all sources is 18, 9 of them extinct.

Table 1. Extinct and living breeding birds of Mangaia, southern Cook Islands. Holyoak's list is mostly from sight records, including (1980) those from waters near Mangaia for *Macronectes* sp., *Fregata ariel* and *Sterna bergii,* none of which is likely to breed on Mangaia and until substantiated by specimens should be considered as hypothetical migrants or vagrants. Specimens from the caves are bones in varying states of mineralization. Introduced species are not considered. *=extinct on Mangaia.

Species List

In the ensuing accounts of the present or formerly breeding species, an asterisk (*) designates taxa that no longer occur on Mangaia. The numbers that follow the species name are, respectively, the total numbers of fossils collected and the minimum number of individuals represented by the fossils. Where known, Mangaian names, based upon my conversations with residents of the island, are given in quotation marks in parentheses following the scientific names.

**Pterodroma* sp. (319, 32)

Fossil remains of this small-sized petrel (about the size of *P. cookii, P. leucoptera* or *P. hypoleuca)* were the commonest fossils in the caves, and the first specimens of any species of *Pterodroma* reported from the Cook Islands. Species-level identification awaits more comparative skeletons. The nearest breeding populations of petrels in this size range are *P. leucoptera brevipes* in Fiji and Samoa, *P. macgillivrayi* of Fiji and *P. nigripennis* of the Austral Group (Harrison 1983: 248–250, Watling 1982: 136, 137). Holyoak (1980) reported tentative sight records at sea in 1973 of *P. nigripennis* near Rarotonga and of *P. leucoptera* from somewhere in the southern Cook Islands. At dusk on 30 March 1984, I saw 3 individuals of an undetermined species of *Pterodroma* flying over the sea, c. 50 m beyond Mangaia's fringing reef.

Puffinus sp. ("Rakoa") (10, 3)

This small shearwater is of the *lherminieri/assimilis* species group, the systematics of which are poorly understood. A fledgling, the only individual I saw, was collected from a crevice in the inner cliff of the makatea near

Tamarua Village on 13 April 1984. Residents of Tamarua reported seeing the ''rakoa'' commonly at dusk. This is the first whole specimen or breeding record for *P. lherminieri/assimilis* from the Cook Islands. Small shearwaters asigned to *P. assimilis* nest on Rapa in the Austral Group (Bourne 1959), whereas *P. lherminieri* breeds in the archipelagos of Fiji, Samoa, Society, Tuamotu and Marquesas (duPont 1976: 16). Holyoak (1980) reported sight records of *P. lherminieri* at sea in 1973 from somewhere in both the southern and northern Cook Islands.

**Nesofregetta fuliginosa* (3, 1)

Fossils from Toruapuru Cave include the very distinctive tarsometatarsus of *N. fuliginosa,* which is much larger and more laterally expanded than in any other species of Oceanitidae. This large storm-petrel breeds in Fiji, Samoa, Phoenix, Line, Austral, Gambier and Marquesas (duPont 1976: 18, Harrison 1983: 271), but the bones from Mangaia are the first specimens or probable breeding record from the Cook Islands. Holyoak (1980) reported sight records of *N. fuliginosa* at sea in 1973 from the northern Cook Islands.

Phaethon rubricauda (''Tavake'') (1, 1)

Phaethon lepturus (''Pirake'') (1, 1)

These 2 tropicbirds are fairly common, or at least are rather conspicuous, on Mangaia today, both nesting on the inner cliff of the makatea. They are widespread in the Cook Islands and most of Oceania. No evidence of breeding at the time of my visit was found for *P. lepturus;* a specimen of *P. rubricauda* taken on 11 April had slightly enlarged ova.

Egretta sacra (''Kotuku'') (0, 0)

This heron is common in the shallow water between the shore and fringing reef, as well as in the taro swamps of the interior. Dark-phased birds outnumber white birds by c. 4: 1. *E. sacra* has been recorded from most of the Cook Islands and much of Oceania.

Anas superciliosa (''Mokora'') (2, 1)

This duck is common in the taro swamps and adjacent agricultural land. Holyoak (1980) estimated that fewer than 100 were present in August 1973. In March and April 1984 there were 100-300.

Porzana aff *tabuensis* (''Mo'o mo'o'') (35, 4)

The ''mo'o mo'o'' is a small, black rail that lives in and near the taro swamps, probably *P. tabuensis* or an endemic derivative thereof. The Mangaians describe it as shy and elusive (much more often heard than seen) and remarked on its extreme rarity. I did not see one alive. Specimens of *P. tabuensis* have not been taken in the Cook Islands, although Holyoak (1980) had sight records from Atiu and Mitiaro, and stated (p 27) that it ''. . . may well also be present on Mauke and Mangaia and possibly elsewhere''. An associated skeleton (31 bones) of a small species of *Porzana* from Toruapuru Cave was similar to a modern skeleton of *P. tabuensis* from Tonga, but slightly larger in the leg elements. *P. tabuensis,* which is capable of flight, is widespread in Polynesia, and has been listed from Samoa, Tonga, Niue, Austral, Society, Tuamotu, Ducie and Oeno (duPont 1976: 42).

**Porzana,* new sp (11, 6)

Associated wing and leg bones were recovered for 2 individuals, to be described elsewhere as a new species (Steadman in prep). This extinct rail was larger (based upon leg bones) than *P. tabuensis,* but had wing elements too small for flight. It is very similar in size to the living *P. atra* of Henderson Island, but has the pectoral elements reduced even more than in that presumably flightless species. The Mangaian fossils suggest that perhaps 2 species of *Porzana* once inhabited many of the islands in eastern Polynesia, the smaller being *P. tabuensis* or its derivative, and the larger, more flightless one being very similar to *P. atra.*

******Gallirallus,* new sp (4 specimens, 1 or 2 individuals)

An associated tibiotarsus and tarsometatarsus and an isolated mandible and coracoid represent this undescribed flightless species (Steadman in prep). This is the first record of any form of *Gallirallus* from eastern Polynesia, except for a painting by Johann Georg Adam Forster in 1773 or 1774 (Captain James Cook's second voyage) of a rail from Tahiti known as *Galirallus pacificus* (Gmelin) (=*G. ecaudata),* for which no specimens other than the painting exist (Lysaught 1959: 302, Olson 1973). The nearest living populations of any species of *Gallirallus* are those of *G. philippensis* from Fiji, Rotuma, Samoa, Tonga and Niue (duPont 1976: 40).

**Anous stolidus* (''Ngoio'') (0, 0)

As reported for St Helena, Ascension and Hawaii (Olson & James 1982), the lack of fossils of *Anous* may be related somehow to their nesting habits. This tern is very common in the coastal and makatea regions of Mangaia, often nesting in Coconut Palms *Cocos nucifera.* Downy young were present in March and April 1984. Holyoak (1980) estimated that fewer than 100 lived on Mangaia in August 1973; 500-1000 were present during my visit.

Gygis alba (''Kakaia'') (111, 15)

This small tern is Mangaia's most common seabird. It is found abundantly throughout the island, nesting on cliffs, in various species of trees, but perhaps most often in Coconut Palms. Adults were feeding fledged young in March and April 1984. Holyoak (1980) estimated there were fewer than 100 in August 1973; 1000-2000 were present during my visit.

**Gallicolumba* sp (1, 1)

A columbid femur from Te Rua Rere Cave represents a species of *Gallicolumba,* but species-level identification requires more fossils and comparative skeletons. This femur is slightly smaller than the only one available in a skeleton of *G. stairi,* a male from Ofu, American Samoa. *G. stairi* is known also from Fiji, Samoa and Tonga (duPont 1976: 71), with females significantly smaller than males, so the fossil femur may represent *G. stairi* or perhaps *G. erythroptera,* a species of similar size from the Society and Tuamotu Groups. The fossil femur is much larger than that in *G. rubescens* of the Marquesas, the only other species of *Galicolumba* in Polynesia. No species of *Gallicolumba* has been reported before from the Cook Islands.

**Ducula* cf *galeata* (2, 1)

This pigeon was recorded in Te Rua Rere Cave only from 2 coracoids that are larger than in *D. pacifica* or *D. aurorae,* and seem, but without direct comparison, to be the size of those in *D. galeata,* an extremely rare species known historically only from mountain forests of Nuku Hiva (Marquesas), c. 2500 km northeast of Mangaia. *D. galeata* has also been reported from archaeological remains on remote Henderson Island, c. 2000 km southeast of Nuku Hiva (Steadman & Olson MS). It is likely that most species of *Ducula, Gallicolumba* and *Ptilinopus* were more widespread in eastern Polynesia in prehistoric times than now. Mangaians told me of the former occurrence (before their own lifetimes) of the "rupe", which may have been transported by man to Mangaia, they say, from Rarotonga. Elsewhere in the Cook Islands, "rupe" refers to *D. pacifica,* which is found on most of the southern Cook Islands except Mangaia (Holyoak 1980).

**Ptilinopus* sp. (1, 1)

A single femur from Te Rua Rere Cave is referable to a species of *Ptilinopus* about the size of *P. rarotongensis* or *P. purpuratus.* More specimens are needed to determine the species. No skeletons of *P. rarotongensis* were available for comparison, but the Mangaian fossil could not be distinguished from a female specimen of *P. purpuratus coralensis* from Toau Island, Tuamotu. *P. rarotongensis* is endemic to the Cook Islands, known historically from Rarotonga and Atiu (Holyoak 1980); also Bloxam (1925: 86) noted a species of *Ptilinopus* on Mauke in 1825, for which no specimens apparently exist, although it may have been *P. rarotongensis,* since Mauke is only c. 65 km from Atiu. *P. purpuratus* is found throughout the Society and Tuamotu Islands, but is not known from the Cook Islands. On Rarotonga and Atiu, *P. rarotongensis* is known as the "kukupa". None of the Mangaians that I interviewed knew of the past occurrence of the "kukupa" on their island.

**Vini* cf *V. kuhlii* (1, 1)

A nearly complete sternum is inseparable from that of *V. kuhlii,* but cannot be distinguished with certainty from that of *V. australis.* It is much larger than in *V. peruviana.* Skeletons of *V. ultramarina* and *V. stepheni* were not available. *V. kuhlii* occurs naturally only on Rimatara Island in the Austral Group, c. 480 km east of Mangaia. The nearest occurrence of *V. australis* to Mangaia is on Niue Island, c. 1300 km to the west-northwest. There are no native psittacids in the Cook Islands today. *(V. peruviana* on Aitutaki is almost certainly introduced by man from the Society or Tuamotu Islands.) Nevertheless, native words for parrots exist in the early language of Rarotonga and Mangaia (Savage 1980: 123, 165). Very likely *V. kuhlii* or a related species once occurred throughout the southern Cook Islands.

Halcyon mangaia ("Tanga'eo" or "Tangaa'eo," not "Ngotare" as stated by Holyoak 1980) (26, 4)

This kingfisher is sparsely distributed in the forested regions of Mangaia, from the coastal forest, where it is commonest, through the makatea and into the highlands, where it is least common. It usually occurs in pairs and is seen most often at the edge of the forest. All Mangaians have noted a decline in the numbers of *H. mangaia* over the past 1-2 decades, blaming this on predation and competition from *Acridotheres tristis,* an Asian mynah that was introduced to Mangaia from Rarotonga in the early or mid-1960's, numbered today in the thousands. Holyoak (1980) estimated that 100-1000 individuals of *H. mangaia* existed in August 1973; 100-300 were present in March and April 1984.

Acrocephalus kerearako ("Kerearako" or "Bush Canary") (2, 2)

This sylviid warbler is common in any sort of forested region, even in the small patches (1 acre or less) of *Hibiscus* in the taro swamps and along streams in the volcanic interior. In March and April 1984, *A. kerearako* was found in pairs, usually with a single fledgling still being fed by the parents. Recently abandoned nests were collected from citrus trees in Oneroa Village and from an unidentified tree in the makatea forest. Holyoak (1980) estimated that 100-1000 existed in August 1973; 500-1500 were present during my field work, which was at the end of the breeding season, when the population should have been at its maximum.

Discussion

Other species of birds may breed on Mangaia today but have gone undetected. For the tern *Procelsterna cerulea,* Holyoak stated (1980: 32) ". . . possibly also nests at Mangaia", but provided no evidence; he used the local name "kara'ura'u" for *P. cerulea,* but the descriptions of the "kara'ura'u" given to me by various Mangaians were not particularly suggestive of *P. cerulea* or any other known bird. Christian (1920: 87) described "kara'ura'u" merely as "a sea-bird".

The "titi" is a seabird that Mangaians say is similar or identical to the New Zealand "muttonbird"; although rare today, it formerly nested in large numbers in burrows in the soft soil of Mangaia's volcanic uplands. I found no specimens, living or fossil, of the "titi" in spite of specific searches for it. Christian (1920: 87) described it as "a bird living in the rocks and crags. Much relished for food, cf Maori *Titi,* the Mutton-bird". I believe that the "titi" is likely to be a species of *Puffinus,* perhaps *P. pacificus* or *P. nativitatis.* The specimen of the *Puffinus lherminieri/assimilis* group collected from a crevice in the makatea cliff (see above) was called "rakoa" by the Mangaians, who noted that the "rakoa" is similar to, but slightly smaller than, the "titi". In New Zealand and the Kermadec Islands, the name "titi" has been applied to both *P. assimilis* and *P. griseus,* whereas the name "mutton-bird" has been applied to *P. griseus* and *P. tenuirostris* (Oliver 1955: 126, 130, 131). Based upon their known breeding ranges, neither *P. griseus* nor *P. tenuirostris* seem likely to nest on Mangaia.

The "upoa" is another seabird known to some Mangaians today, but is generally regarded as rare and, like the "titi" and "rakoa", is heard only at night. Elsewhere in Polynesia, "upoa" or its local equivalent name refers to a species of *Pterodroma.* The "upoa" could be the small species of *Pterodroma* that occurs commonly as a fossil, or it could be one of several larger species of *Pterodroma* that may have nested on Mangaia in the recent past.

"Kaua" was listed by Christian (1920: 87) as a "sea-bird" without further comment, but he later (Christian 1924: 13) defined "kaua" as "a land bird formerly revered as a divine messenger of peace (unidentified)". I did not ask any Mangaians about the "kaua".

Future palaeontological work on Mangaia promises to be productive. Several of the 9 extinct species are known only from 1-2 bones and more fossils are needed before their morphology and systematics can be described in detail. Many caves remain unexplored for fossils, and even those already explored have not been excavated thoroughly. Based upon species living elsewhere in the South Pacific, and upon those taxa already found as fossils, other species in the following genera may well be found as fossils on Mangaia in due course: *Pterodroma, Puffinus, Porphyrio, Ducula, Ptilinopus, Tyto, Collocalia, Lalage, Pomarea, Clytorhynchus, Pachycephala, Foulehaio* and *Aplonis.*

Because human impact seems to be involved in nearly all cases of Holocene avian extinction on islands, it is essential for the understanding of such extinction to draw upon evidence from cultural information (linguistics, legends, archaeology, etc). Reciprocally, palaeontological identifications will assist anthropologists to recognize more easily the biotic resources (such as sources of protein) available to aboriginal peoples when they first set foot on a new island. Research on insular cultures and biotas by the 2 disciplines should never be separated.

It may be thought remarkable that an island as remote and small as Mangaia could have supported at least 18 species of breeding birds until probably only hundreds of years ago, but this situation parallels that of other islands where a thorough record of past birds has been compiled from both palaeontological and archaeological sources, such as in Hawaii (Olson & James 1982, 1984), New Zealand (Anderson 1984, Cassels 1984, Trotter & McCulloch 1984) or Antigua (Steadman *et al* 1984). Exploring caves on only 8 of my 23 days on Mangaia enabled me to double the island's recognized avifauna, without giving reason to believe that every extinct species had been found or that the level of extinction in Mangaian birds was any greater than on most other Pacific islands. More species and populations of birds became extinct in Oceania in the past millenium than exist there today; but only through combined studies of bones from archaeological and palaeontological sites will we understand the distribution of these birds before man disrupted their fragile ecosystems.

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A new subspecies of the babbler *Malacocincla abbotti* from the Eastern Ghats, India

by S. Dillon Ripley and Bruce M. Beehler

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The Vernay Scientific Survey conducted a thorough avifaunal exploration of the Eastern Ghats, the chain of low mountains that parallels the eastern coast of India (c. 16°-18°N, 80°-83°E) (Whistler & Kinnear 1930, 1932). This major expedition uncovered a surprising diversity of previously undescribed forms. Many of these were relict montane populations, similar in nature to the assortment of upland species that inhabit the Western Ghats, and whose affinities link them to the avifauna of the northeastern hill states and Burma.

In 1981, and again in 1983, field trips jointly sponsored by the Smithsonian Institution and Bombay Natural History Society were made to the Eastern Ghats of the Visakhapatnam District, Andhra Pradesh. Among the new distributional records made during this survey was the discovery of an isolated population of the widespread Asian babbler *Malacocincla (Trichastoma) abbotti* (for generic assignment to *Malacocincla* see Ripley & Beehler in press). The only other records for the Indian region are from Eastern Nepal and from the Khasi Hills, more than 1000 km to the north.

We have found several plumage characteristics that distinguish this isolated babbler from its nearest related forms to the north. We suggest this south-eastern form be named:

Malacocincla abbotti krishnarajui subsp. nov.

Holotype. Adult female collected 15 October 1983 by Bruce Beehler at Pedevalasa, Chintapalli Teluk, Vizag District, Andhra Pradesh, at c. 1000 m (17°50′N, 82°20′E), USNM #585181.

Diagnosis. The new population differs from the nominate *abbotti* from Nepal and northeastern India as follows:— (1) upper surface of tail and rump deeper brown; (2) crown, back, wings more olive; (3) vent feathering richer rufescent; (4) pale grey of throat extends further onto the breast; and (5) lower breast and belly are slightly paler washed with buff-tan. A comparison of measurements of wing, tail, culmen and tarsus show no significant differences between southeastern and northeastern populations.

Measurements and soft parts. Wing (chord) 70.5 mm, tail 44 mm, culmen (from skull) 20.5 mm, tarsus 28 mm, weight 25.5 g. Iris medium brown; legs dusky flesh.

Distribution and ecology. First mist-netted by K. S. R. Krishna Raju at Rhagavendra Nagar in 1981. The species is now known from 4 localities in the ghats: Pedevalasa, Rhagavendra Nagar, Lankapakalu and Wangasara, all of which support at least some remnant patches of moist deciduous or semi-evergreen forest. As elsewhere in its range in India (Ali & Ripley 1971), the species appears to prefer wooded ravines and thickly vegetated gulleys, and was usually netted close to the ground.

Specimens examined. Visakhapatnam Ghats: 1 ♂, 3 ♀♀ (USNM); Eastern Nepal (Kosi R.) 1 ♀ (USNM); Khasi Hills: 2 ♂♂ (AMNH); Thailand: 5 ♂♂ (USNM).

Remarks. This new form is named to honour K. S. R. Krishna Raju of the Andhra Pradesh Natural History Society, for his efforts to promote the survey and conservation of the natural resources of the Eastern Ghats.

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Weights of some Cuban birds

by Storrs L. Olson

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Specimen weights are recognized as one important measure of the size of a bird and may also frequently prove to be of systematic value in distinguishing between different populations, particularly of polytypic forms on islands. For example, data on weights from various populations of the West Indian tanager *Spindalis* corroborate plumage differences that suggest these birds are best divided into 3 species rather than one (Steadman *et al.* 1980). In the Cayman Islands, 2 populations of *Vireo crassirostris* currently considered to belong to the same subspecies were shown to differ significantly in weight (Olson *et al.* 1981), these differences subsequently being corroborated by other measurements (Olson & Barlow, in prep.).

The present paper continues previous studies of West Indian bird weights (Olson & Angle 1977; Steadman *et al.* 1980; Olson *et al.* 1981; Schreiber & Schreiber 1984), and results from 2 collecting trips to Cuba. Although many Cuban species are not represented in Table 1, it has not been possible to resume investigations on Cuba to augment the collections and additional weight data will probably be long in coming, especially for the rarer species.

Table 1. Weights (gm) of Cuban birds.

Falco sparverius sparverioides ♂ 97, 100, 103; ♀ 98, 99, 100, 101, 102, 103, 104, 104, 120
Jacana s. spinosa ♂ 83, 90, 91, 91, 94, 98; ♀ 140, 149
Capella gallinago delicata ♀ 94
Zenaida macroura subsp ♂ 104, 115
Zenaida a. asiatica ♂ 162
Saurothera m. merlini ♂ 145
Crotophaga ani ♂ 101
Glaucidium s. siju ♂ 47
Otus (''Gymnoglaux'') l. lawrencii ♀ 80
Chlorostilbon r. ricordii ♂ 3.3; ♀ 2.6
Todus multicolor ♀? 5.8
Melanerpes s. superciliaris ♂ 111; ♀ 89
Tyrannus d. dominicensis ♂ 49
Tyrannus c. caudifasciatus ♀ 38, 39
Myiarchus s. sagrae ♀ 18.5
Contopus c. caribaeus ♀ 11.5, 13
Corvus nasicus ♂ 347, 365, 385; ♀ 330, 365, 366
Turdus plumbeus schistaceus ♂ 83; ♀ 69
Turdus plumbeus rubripes ♂ 67.5, 74; ♀ 65, 66
Polioptila lembeyei ♂ 4.5, 4.6; ♀? 4.5; sex? 4.5, 4.6
Vireo g. gundlachi ♀ 13
Vireo g. orientalis ♂ 12.5, 13; ♀ 13.3
Mniotilta varia ♀ 7.5
Teretistris fernandinae ♂ 9; sex? 9
Teretistris fornsi ♀ 10
Quiscalis niger gundlachii ♂ 92, 93; ♀ 64, 68, 69
Dives atroviolaceus ♂ 85, 86, 89, 90, 90; ♀ 73
Agelaius phoeniceus assimilis ♂ 46, 49, 50, 50, 51, 51, 51, 52, 52, 54; ♀ 36, 37, 38, 38, 39, 39, 39, 40, 42, 42, 43
Agelaius h. humeralis ♂ 37; ♀ 27, 28, 30, 32
Sturnella magna hippocrepis ♂ 87, 91, 92; ♀ 62, 68, 72, 72, 75
Tiaris o. olivacea ♂ 7, 7.6, 8; ♀ 7, 10
Melopyrrha n. nigra ♀ 13
Torreornis i. inexpectata ♂ 28; ♀ 25; sex? 24
Torreornis i. sigmani ♂ 26, 27, 28.5, 29; ♀ 27.3, 28

Specimens were collected in 2 very different parts of the island. The first series was obtained from 24 to 30 October 1979, mainly near the village of Santo Tomás, a classic collecting locality at the edge of the Zapata Swamp in what is now Matanzas Province, with additional specimens from the resort of Playa Larga at the head of the infamous Bahía de Cochinos. The second series was taken from 2 to 5 November 1980 in the extremely arid southeastern part of the island, mainly near the town of Baitiquirí and east along the coast to Imías, in what is now the province of Guantánamo (formerly part of Oriente Province).

All specimens were weighed with Pesola spring balances, on the day of capture, never more than 8 hours subsequent to their having been collected. The sequence and nomenclature in general follows that of Garrido & Garcia (1975). The specimen of *Tyrannus dominicensis,* taken 3 km east of San Antonio del Sur on 3 November 1980, represents a late date for this migratory species. The smallest male of *Agelaius phoeniceus* (46 gm) was captured by hand in apparently ill health; despite this, it weighed more than the largest female. The specimens of *Quiscalis niger* are assumed to be referable to the subspecies *gundlachii* on the basis of Garrido's (1973) analysis of the distribution of the Cuban forms of this species.

Acknowledgements: My trips to Cuba were part of joint expeditions in conjunction with the Instituto de Zoología, Academia de Ciencias de Cuba, whose members were of invaluable assistance: Orlando H. Garrido, Nicasio Viña, Fernando Gonzalez, Hiram Gonzalez and Noel Gonzalez, the last named having aided greatly in the preparation of specimens. I would also like to thank my colleagues James Lynch and Eugene Morton of the Smithsonian for their aid on these ventures, and David W. Steadman for his comments on the manuscript.

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A recent record of the endangered St Lucia Wren *Troglodytes aedon mesoleucus*

by Gary R. Graves

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The St Lucia Wren *Troglodytes aedon mesoleucus* is listed as critically endangered and possibly extinct by the ICBP Red Data Book (1981) and Bond (1978). Although formerly more widespread on St Lucia, the wren has been restricted since the 1930's to the region between Le Marquis and Grand Anse on the northeastern windward coast (Danforth 1935). The last published record is of one heard but not seen in May 1971 in a tangle of trees fringing Grand Anse beach (Red Data Book 1981). More recently, Diamond (1973) failed to record this wren during censuses in the La Sorcière Valley, immediately south of Grand Anse.

On 20 August 1984 I found 2 wrens in the windward coastal scrub forest at c. 110 m asl along the 4-wheel drive road below Debarra leading to Grand Anse beach – c. 1 km west of the 1971 sighting. The first bird was singing from perches 3-5 m above the ground in a wooded ravine (canopy height 10-12 m). The song was loud and melodious and similar in quality to songs of *Thryothorus* wrens rather than to House Wrens *(Troglodytes)* breeding in eastern North America and western South America, and similar to those described for *T.a. guadeloupensis* of Guadeloupe (Barlow 1978), *T.a. rufescens* of Dominica (Bond 1928), *T.a. grenadensis* of Grenada (Clark 1905) and *T.a. musicus* of St Vincent (Clark 1905). The white underparts and proportionately long bill were conspicuous. The few foraging movements I recorded before a sudden rain shower terminated observation were of the wren peering into and probing fissures in tree bark. The relatively long bills of Lesser Antillean *Troglodytes* and my brief observations of *T.a. mesoleucus* suggest they probe crevices and fissures more than their continental counterparts (Table 1). Unfortunately, no detailed accounts of their foraging behaviour are available in the literature.

Table 1. Proportions of Antillean and mainland *Troglodytes aedon* (culmen length from anterior nostril/chord wing length) from specimens in the National Museum of Natural History, Washington D.C. Sexes are combined because of uncertainty of data from crucial specimens.

Locality	Race	N	Range	Mean	
Guadeloupe	*guadeloupensis*	3	.223–.246	.232	
Dominica	*rufescens*	2	.212–.218	.215	
Martinique	*martinicensis*	2	.223–.232	.228	Oceanic Islands
St Lucia	*mesoleucus*	5	.232–.262	.247	
St Vincent	*musicus*	2	.212–.219	.216	
Grenada	*grenadensis*	4	.215–.254	.240	
Tobago	*tobagensis*	1	–	.201	
Trinidad	*albicans*	2	.201–.202	.202	Land-bridge Islands and Mainland
Colombia and Venezuela	*albicans*	6	.177–.202	.189	
Colombia	*columbae*	5	.183–.205	.194	
Colombia	*atopus*	9	.196–.229	.211	
Panama	*inquietus*	5	.177–.220	.195	

A second wren was heard singing about 200 m from the location of the first bird. Although no other wrens were recorded in similar habitat during the next 2 hours, the more remote forested ravines above Grand Anse could support several dozen wrens.

Other species recorded in the same scrub forest (08:00-10:30) at this locality were (number of individuals in parentheses): *Coereba flaveola* (28), *Loxigilla noctis* (25), *Vireo altiloquus* (17), *Dendroica adelaidae* (16), *Orthorhyncus cristatus* (13), *Elaenia martinica* (11), *Margarops fuscatus* (11), *Zenaida aurita* (8), *Saltator albicollis* (7), *Tyrannus dominicensis* (5), *Coccyzus minor* (3), *Cinclocerthia ruficauda* (3), *Eulampis jugularis* (2), *Icterus laudabilis* (2), *Melanospiza richardsoni* (pair), *Buteo platypterus* (1), *Geotrygon montana* (1), *Contopus latirostris* (1) and *Molothrus bonariensis* (1).

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Some notes on the birds of Borneo

by R. S. & G. A. Vowles

Received 4 October 1984

These notes present data on 8 species of birds new to Borneo and additional information on 7 other species. All records were made by the authors from southwest Brunei, unless otherwise stated, and detailed notes may be obtained from them.

LITTLE EGRET *Egretta garzetta*

Although this is a common wintering species, only a few remain on Borneo during the breeding season and there is no previous evidence of breeding (Smythies 1981). On 7 June 1980, at Sungai Seria, a pair was observed with one flightless chick. They were seen feeding on the river banks during the following 3 days, after which the chick was not seen again. In May-June 1982 a pair was observed displaying and carrying nest material into a dense area of *Nypa fruticans* within 100 m of the site where the previous chick had been. No nest or young was discovered.

PINTAIL *Anas acuta*

There have been only 4 previous records from Borneo, all relating to specimens, the most recent being 1925 (Smythies 1981). One male was seen in flight by J. Collman on the east side of Labuan, Sabah, on 11 October 1970.

SPARROWHAWK *Accipiter nisus*

There has been only one previous record for this species – a specimen collected at Kuching, Sarawak, in March 1895 (Smythies 1981). On 4 November 1981, near Labi, a large *Accipiter* was seen flying into a tree close to the roadside. The bird was watched, from a vehicle within 20 m, sitting on an exposed branch for c. 10 mins. The diagnostic characters which in conjunction separated it from other *Accipiters* which could occur on Borneo were size, lack of mesial stripe, and uniform faint barring on underparts. It was a female.

WATER RAIL *Rallus aquaticus*

There has been only one previous record – a specimen from Talang Talang Island collected in December 1956 (Smythies 1981). On 18 September 1980, at Sungai Seria, a rail was seen close to the roadside. Over a period of c. 15

mins it was identified, being seen repeatedly darting out from thick cover onto open dried mud to feed for c. 5 secs before returning to cover again.

GREY-HEADED LAPWING *Vanellus cinereus*

There have been 2 previous records (possibly the same bird), November 1974 at Seria and January 1975 at Miri, Sarawak (Smith 1975). One bird was observed on Sungai Seria 25-27 September 1981.

RINGED PLOVER *Charadrius hiaticula*

Previously known only from one undated sighting for 1971-1972 at Sungai Seria by P. and R. Clough (Panaga Natural History Society records). On 11 September 1980, at Sungai Seria, one adult in summer plumage was observed feeding on inter-tidal mud with a small flock of *C. dubius* and *C. mongolus.* Its white wing-bar in flight was well seen. *C. dubius* is a common wintering species on Borneo and possibly *C. hiaticula* has been overlooked.

LONG-BILLED PLOVER *Charadrius placidus*

There have been no previous records for this species. From 19 to 31 January 1982, one bird was seen at Sungai Seria feeding on inter-tidal mud with *C. dubius, C. mongolus* and *Tringa glareola.* A further sighting at the same place was made by S. de Boehmler and J. Elkin on 11 December 1982. The long black bill and larger size readily distinguished it from *C. dubius,* otherwise similarly plumaged. In addition, in feeding behaviour it resembled *C. leschenaultii* rather than the scurrying, with abrupt halts, typical of smaller *Charadrius* species.

LONG-BILLED DOWITCHER *Limnodromus scolopaceus*

There have been no previous records for southeast Asia. From 12 to 22 September 1980, at Sungai Seria, one immature was seen feeding on inter-tidal mud with a flock of *Pluvialis dominica* and several *Charadrius* species, compared with which its overall size was estimated as slightly smaller than that of *L. semipalmatus,* its bill straight without the swollen tip of *L. semipalmatus* and dark with greenish base, bill length 55-65 mm, tarsus c. 40 mm, legs distinctly green. A detailed description of the plumage is available from the authors.

LITTLE STINT *Calidris minuta*

Although recently recorded on mainland southeast Asia (D. R. Wells), there are no previous sightings from Borneo. From 8 April to 4 June 1982, one was seen with a small flock of *C. ruficollis,* all in non-breeding plumage, on Sungai Seria. On several occasions it was approached to within 6 m and its slightly smaller size together with the streaking almost meeting across its breast was noted. Although it remained throughout the period with *C. ruficollis,* it at all times kept to the periphery of the flock and was vigorously chased whenever it approached within a metre of another bird.

DUNLIN *Calidris alpina*

No previous records. One was observed at Sungai Seria on 23 July 1980 and again 2-7 November 1981, both times in winter plumage and from within 10 m range. Comparison was possible with other *Calidris* species and *Limicola falcinellus* feeding nearby.

WOODCOCK *Scolopax rusticola*

No previous records. From 1 to 3 were regularly seen (once from within 6 m) every autumn and spring passage 1978-1982 (T. Dolman), either in a short-grass clearing in wet woodland or on a tarmac car park at Panaga, and always in close company with *Gallinago stenura* and *G. gallinago.*

CASPIAN TERN *Hydroprogne caspia*

No previous records. On 19 September 1980, at the mouth of the Belait River, 6 were seen resting on a sand-bank with *Sterna albifrons* and *Pluvialis dominica.* 5 were in winter and one in summer plumage. They remained until the tide came in and then left the area.

DUSKY CRAG MARTIN *Hirundo concolor*

No previous records. On 1 July 1980, at the mouth of the Tutong River, one was seen hawking in company with *H. tahitica.* It was darker than the northern species, *H. rupestris,* with uniform dark underparts and only barely discernible white spots on the tail. In autumn 1980, T. C. White and J. R. Neighbour observed a dark-coloured crag martin on the Tutong River, probably *concolor.* These 2 records need confirmation, but no other species fits the descriptions, and in any case the occurrence of a crag martin species in Borneo is in itself noteworthy as none has been seen there before.

SIBERIAN RUBYTHROAT *Erithacus calliope*

No previous records. On 8 March and 15 October 1980, one adult male (possibly the same bird) was observed by S. Eden, on both occasions staying for 2 weeks, feeding in a mature garden at Panaga, sometimes approaching to within a metre of the house.

PIED BUSHCAT *Saxicola caprata*

Known previously only from 2 undated specimens of unknown origin (Smythies 1981). On 23 December 1970, J. Collman closely observed a female in a garden in Kuala Belait. Detailed notes of plumage were made, in particular the absence of any distinguishing markings characteristic of other *Saxicola* species possible in the area.

Acknowledgements: We are indebted to D. R. Wells, of the University of Malaysia, for advising us on the current status and for critically examining the descriptions of many species, and also to Dr S. J. Tyler for checking and commenting on this paper.

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A new subspecies of *Mecocerculus leucophrys* from Venezuela

by Robert W. Dickerman

Received 19 October 1984

Two subspecies of the White-throated Tyrannulet *Mecocerculus leucophrys* are currently recognized from the tepuis (flat-topped isolated mountains) of southern Venezuela: *roraimae* (type locality Cerro Roraima) Hellmayr (1921), and *parui* (known only from Cerro Paru, Territorio Amazonas) Phelps &

Phelps (1950). Recently while surveying specimens from southern Venezuela in the collection of the American Museum of Natural History in preparation for field work on Cerro Neblina, I realized that the series of specimens from Cerro Duida was distinctive and represented an undescribed subspecies. This may now be known as

Mecocerculus leucophrys chapmani subsp. nov.

Holotype. Adult male, No. 271,226 in American Museum of Natural History, New York. Collected "Cumbre 13, Desfiladero" 6200 feet, Cerro Duida, Territorio Amazonas, Venezuela, on 1 February 1929 by the Olalla Brothers Alphonse and Ramon (see Chapman 1931).

Description. Similar to *M.l. parui* but richer yellow on the belly. Darker dorsally than *roraimae,* slightly browner, less olive; breast band slightly more distinct and more olive, less greyish.

Range. Known only from Cerro Duida and adjacent Cerro Marahuaca.

Specimens examined. M.l. roraimae. DEPARTMENTO BOLIVAR: Cerro Roraima 49, Cerro Cuquenan (=Kukenam in Chapman 1931) 3, Uei-tepui 1, Mesetas de Jaua and Sarisarinama 17. TERRITORIO AMAZONAS: Cerro Neblina (some labled "Jime") 9 (other specimens were examined in the Phelps Collection, but were not compared in detail), Cerro Yavi 8, Cerro Huachamaquare 5, Cerro Guaiquinina 3.

M.l. chapmani. TERRITORIO AMAZONAS: Cerro Duida 30, Cerro Marahuaca 2.

M.l. parui. TERRITORIO AMAZONAS: Cerro Paru 9 (including type).

Remarks. Chapman (1931: 94) noted that the Duidan specimens averaged ". . . slightly darker above, and the crown in some examples is deeper in tone than the back . . ." than in topotypes of *roraimae,* but did not consider this worth recognizing at the subspecific level. This is understandable in view of the levels of differences Chapman was describing at that time. However, the distinctness of the series from Cerro Duida is obvious on gross observation of the specimens in the museum tray. Further, Chapman was unaware of the extent of variation within species yet to be described both between the eastern tepuis of the Gran Savanna, and the western tepuis of the Amazonas region, and among the tepuis of those respective regions. It is appropriate to name a tepui form for Dr Chapman in tribute to his early and brilliant analysis of the origin of the avifauna of the region.

M.l. parui was described as being darker dorsally than *roraimae.* Only one of 9 *parui* is darker dorsally than the series of *chapmani,* and *parui* would be used for the Cerro Duida – Cerro Marahuaca populations except for the markedly paler venters of *parui.*

Thus in the western portion of the pantepui region we find 2 isolated populations on Cerros Paru and Duida-Marahuaca respectively that have differentiated from the surrounding and widespread *roraimae* stock. It should be noted that series of the species are not yet available from several high tepuis of the western region.

The above description was prepared from specimens collected 1925 *(roraimae)* 1929 *(chapmani)* and 1949 *(parui).* Two topotypes (and possibly paratypes) collected 10 and 30 August 1883 on Cerro Roraima by H. Whitely are obviously foxed dorsally (but not ventrally) and are browner than the large series of topotypes collected in 1927. Comparison of specimens collected on Cerro Neblina February–April 1984 with specimens collected 1954 and 1967 revealed a considerable degree of foxing in both of the earlier series. Further, it should be noted that an immature from Cerro Neblina, aged by the author, is considerably paler ventrally, (and thus is like *parui)* than 2 adults collected at the same site by the author. Thus, this species is one in which comparisons must be made with specimens collected in comparable year periods, and of comparable age.

Acknowledgements: The author wishes to thank Ramon Avelado H. and William H. Phelps Jr for access to and the loan of specimens from the Coleccion Ornithologica Phelps in Caracas, Venezuela.

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The first record of the Brown-chested Flycatcher *Rhinomyias brunneata* for Thailand

by Jarujin Nabhitabhata & Nivesh Nadee

Received 9 October 1984

During a faunal survey of lowland semi-evergreen forest at Ban Ao Ko, Tha Chang District, Surat Thani Province, peninsular Thailand (9°20′N, 98°55′E), a specimen of the Brown-chested Flycatcher *Rhinomyias brunneata* was collected on 24 September 1983, the first record for Thailand. The bird was trapped in a mist net placed in the understorey of streamside, "gallery" forest at c. 50 m a.s.l. The specimen (No. TNRC 53–5091) was deposited in the National Reference Collection in the Ecological Research Division of the Thailand Institute of Scientific and Technological Research, Bangkok.

A large, robust flycatcher with a dark brown breast band, *R. brunneata* may be distinguished from the similar Fulvous-breasted Flycatcher *R. olivacea* and the Grey-chested Flycatcher *R. umbratilis,* both of which are residents in peninsular Thailand, by its yellowish, instead of dark, lower mandible. Identification was confirmed by comparison with a specimen of *R. brunneata* collected from Mt Brinchang, Malaysia by H. E. McClure.

Rhinomyias brunneata breeds "from S. Kiangsu, S. Honan and Chekiang through Fukien and Kiangsi to Kwangtung" in SE China (Meyer de Schauensee 1984) and winters in West Malaysia and possibly Sumatra (Medway & Wells 1976). It is the only one of the eight *Rhinomyias* spp. which is known to be migratory (Vaurie 1952).

Acknowledgements: We wish to thank Philip Round who made the original identification and who helpfully criticised the draft of this manuscript and Dr Niphan Ratanaworabhan, Director, Ecological Research Division, for her constant help and encouragement.

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The sympatry of night herons in Borneo

by Frederick H. Sheldon and Manuel Marin A.

Received 19 October 1984

Although suspected for almost a century, breeding of the Rufous Night Heron *Nycticorax caledonicus* in Borneo was not confirmed until the mid-1970s, when J. Q. Phillipps discovered a breeding colony at Likas in Sabah, East Malaysia (Smythies 1981). The status of this night heron on the island is of interest because the Rufous Night Heron and the Black-crowned Night Heron *N. nycticorax,* a well-known resident of Borneo, are thought to constitute a superspecies based on a virtually allopatric distribution (Bock 1956).

N. caledonicus and *N. nycticorax* in fact come into contact on some islands in SE Asia and Wallacea in addition to Borneo, and the extent and significance of their range overlap has been debated. In general, the Philippines, Sulawesi, and the Lesser Sundas form the western extreme of the range of *N. caledonicus;* and Java and Borneo form the eastern extreme for *N. nycticorax.* White (1973) argued that the 2 species are virtually allopatric. He considered that the distributional data are confounded because of wintering migrant *N. nycticorax* (especially in the Philippines), vagrant *N. caledonicus* in north Borneo, and vague, 19th century sympatric breeding records from Sulawesi. Hoogerwerf (1936, 1966) studied a situation in Java similar to that in Borneo, namely one in which *N. caledonicus* apparently had come recently in contact with a large established population of *N. nycticorax.* He found (1936) that the few nests of *N. caledonicus* occurring in Javan heronries were intermingled with those of *N. nycticorax,* rather than clumped in a separate sub-colony. Hoogerwerf thought the 2 species mated selectively in east Java, but he suspected mixed mating in west Java based on his own observations of nests and on the identification of one hybrid individual in a zoo and 4 in the field (1966). Hubbard (1976), reporting on specimens and field notes from a 1973 Luzon collection, found evidence of summering *N. nycticorax* in the otherwise *N. caledonicus*-dominated Philippines. He also described a possible *nycticorax-caledonicus* hybrid among the specimens.

In 1983, as members of the Western Foundation of Vertebrate Zoology expedition to Sabah, we visited the Borneo site where the 2 night heron species were breeding (it is also used for roosting) to study the interaction between these 2 species, particularly whether they hybridize or mate selectively, with a view to providing clues to their derivation and radiation. We paid 6 visits to Likas Swamp near Kota Kinabalu, Sabah (5°59′N, 116°06′E), 18 May–15 June 1983. Likas is a stagnant, sewage-filled mangrove swamp covering one km^2 and is cut off from the sea by rapidly encroaching suburban development.

Its proximity to Kota Kinabalu, Borneo's most developed city, makes it a convenient bird watching site, but also exposes it to constant predation by shooters and egg gatherers.

All the common heron species of Sabah's west coast, with the exception of the Reef Egret *Egretta sacra,* roost at Likas. In addition to the night herons, Great Egrets *Egretta alba,* Little Egrets *E. garzetta,* Plumed Egrets *E. intermedia* and Little Herons *Butorides striatus* nest there.

N. nycticorax outnumbered *N. caledonicus* by at least 10: 1 at Likas. We found 25 nests and observed about 200 individuals of *nycticorax* and 3 nests and 20 individuals of *caledonicus.* On 20 May 1983, the *caledonicus* nests contained respectively 2 eggs, one egg with one chick, and 2 chicks. Unlike those seen by Hoogerwerf (1936), the *caledonicus* nests were not intermingled with those of *nycticorax,* but were grouped together on the fringe of the swamp, while the *nycticorax* nests were roughly aggregated at the centre of the swamp. In addition, we had the impression that neither species flew together with the other, except when flushed. We saw no hybrids or mixed pairs.

We located a separate night heron roosting site in the mangroves along the Darau River near Menggatal (6°01′N, 116°08′E). Hundreds of night herons fly from this site each evening, including small numbers of *N. caledonicus. N. nycticorax* is known to nest in this locality, but we did not ascertain if *N. caledonicus* does.

Discussion. Hancock & Elliott (1978) suggest that *N. caledonicus* reached its present distribution in Wallacea as the result of a range expansion from Australia. Indeed, the Wallacean *N. caledonicus* is the Australian race, *hilli,* and a westward range expansion seems to have occurred in the Lesser Sunda islands, where *N. caledonicus* is rare, leading to the colonization of Java in about 1933 (Hoogerwerf 1966). The hybridization between *N. caledonicus* and *N. nycticorax* reported by Hoogerwerf tends to confirm recent contact between these species in Java.

However, the Philippine *N. caledonicus* clearly has not come recently to that region. It is the predominant night heron species in the Philippines, and it has been separated from *hilli* long enough to have differentiated into at least one race, *manillensis,* and possibly another, *major* (Hubbard 1976). The hybrids reported in the Philippines by Hubbard (1976) appear to be the result of range extension by *N. nycticorax* from mainland Asia. Prior to Hubbard's report, breeding of *N. nycticorax* in the Philippines was unknown (duPont 1971, White 1973).

In Borneo, the *N. caledonicus* race is *manillensis* (Hubbard 1976, Smythies 1981). Before breeding was confirmed for Borneo, it was assumed that the specimens collected there were vagrants from the Philippines via the Sulu archipelago or Palawan (White 1973, Smythies 1981). Now it seems more likely that these specimens, which include immature birds collected in the last century, are of birds which bred in Borneo. Our preliminary evidence of selective mating seems to indicate that the breeding of *N. caledonicus* side-by-side with *N. nycticorax* is not a new phenomenon.

In considering the dynamics of the contact zone between *N. nycticorax* and *N. caledonicus,* it should be remembered that these species are closely related, as shown morphologically by Bock (1956) and Payne & Risley (1976) and genetically by Hoogerwerf (1966) and Hubbard (1976). They are not separated by "Wallace's Line" and, thus, have not come together riding on different tectonic plates. The separation and isolation event leading to their slight differentiation must have occurred relatively recently, possibly as the result of the colonization of the Philippines from mainland Asia; in which case they have probably abutted in north Borneo long enough to have developed selective mating. On the other hand, hybridization would be expected in Java, where expansion of the range of *N. caledonicus* has brought it into contact with *N. nycticorax* in this century, and also on the main islands of the Philippines, where migrant or vagrant *N. nycticorax* from Asia apparently have begun to breed within the last 20 years.

Acknowledgements: This is paper No. 11 of the Western Foundation of Vertebrate Zoology Sabah Project. We thank Ed N. Harrison, President, and Lloyd F. Kiff, Director, of the Foundation for funding and support. We also gratefully acknowledge the Socio-Economic Unit of the Malaysian Prime Minister's Dept., the Sabah Chief Ministers Dept., and the Sabah Forest Dept. (especially Patrick Andau) for permission to undertake research in Sabah. Anthony H. Bledsoe and Jody Kennard kindly commented on the manuscript.

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The affect of alcohol immersion on the plumage colours of bee-eaters

by C. H. Fry

Received 6 October 1984

A specimen of *Merops persicus* in the Museu Civico, Milan, collected in Eritrea in 1906, is blue or blue-green where typical specimens are grass-green, and its forehead and cheeks are white without any traces of yellow. The bird was described initially by E. Moltoni as a new subspecies, *M. p. erythraeus* (Moltoni 1928), but later he treated it as a colour mutant of *M. p. persicus* (Moltoni & Gnecchi Ruscone 1940-1944). The British Museum (Natural History), Tring, has a specimen of identical appearance, taken in Kashmir in 1918 and marked "sent in spirit to Mr Gordon". I thought it likely that both specimens owe their yellowless plumage to prolonged alcohol immersion (Fry 1984). As a test, I immersed specimens (from my collection) of *M.*

bullockoides, M. pusillus and *M. nubicus nubicoides* in 70% ethanol for 9, 4 and 4 months respectively. One series of immersed skins was exposed to sunlight for up to 4 hours daily, and another was kept in the dark. Plumage colours of both series and of all 3 species was greatly affected and in similar respects, so that all changes were clearly wrought by spirit immersion and none by light. As with the *M. persicus* material, greens became blue-greens on exposed ends of feathers but not on their bases, producing an effect very like that of sun-bleached living bee-eaters long after their last moult; yellows and reds were totally suppressed, pure yellow (throat of *M. pusillus)* becoming ivory, scarlet (throat of *M. bullockoides)* becoming pale buff, bright pink (underparts, mantle and back of *M. nubicus)* becoming buffy white, and carmine (wings and tail of *M. nubicus)* changing to gingery brown. Other colours – blues, orange-buffs and black – were unaffected.

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IN BRIEF

Replacement name for *Acrocephalus aedon rufescens* (Stegmann)

by George E. Watson

Received 20 November 1984

The broadened concept of some sylviid genera to be adopted in Volume 11 of Peters' *Check-list of Birds of the World* has resulted in some homonymy in the genus *Acrocephalus.* The Rufous Swamp or Rufous Cane Warbler, formerly known as *Calamoecetor rufescens,* was originally described as *Bradypterus rufescens* Sharpe & Bouvier, 1876, *Bull. Soc. Zool. France,* 1: 307. The Thick-billed Reed Warbler of extreme eastern Siberia and northeast China, originally described as *Phragamaticola aëdon rufescens* Stegmann, 1929, *Journ. f. Ornith.* 77: 250, becomes a junior homonym when both are placed in the genus *Acrocephalus.* I propose *Acrocephalus aedon stegmanni* as a replacement name for *Phragamaticola aëdon rufescens* Stegmann. If the generic name, *Phragamaticola,* is used it should be amended to *Phragmaticola* (see Bond 1975, *Bull. Brit. Orn. Cl.* 95: 50–51.

Address: Dr George E. Watson, National Museum of Natural History, Smithsonian Institution, Washington, D.C. 20560, USA.

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Books Received

Campbell, B. & Lack, E. (Eds.) 1985. *A Dictionary of Birds.* Pp. xxx + 670. Numerous photographs, over 200 line drawings. T & AD Poyser. £35 until September 1985, thereafter £39. Price to BOU members £25 (£26 overseas) until September 1985. All prices post free. (An American edition is available through Buteo Publications.) Obtainable outside USA from BOU, c/o Zoological Society, Regent's Park, NW1 4RY, London, U.K. 28.5 x 21 cm.

This encyclopaedic work is the successor to Professor Alfred Newton's *A Dictionary of Birds* (1896) and Sir Landsborough Thomson's BOU Centenary volume *A New Dictionary of Birds* (1964), long out of print. It has been in great part re-written and brought up to date by 280 authors. Its over 1 million words, and the attractive and instructive line drawings and photographs make it a considerable bargain even at £39, and it will of course, like its predecessors, be an important source of reference for the next few decades.

Pinto, A. A. da Rosa. 1983 (received 1985). *Ornitologia de Angola.* Vol. I. Non Passeres.Pp. cxxxvi + 696. 48 full page colour plates (48 spp.), +26 text drawings by Alfredo da Conceição. Instituto de Investigação Científica Tropical, Lisbon. No price given.

This sumptuous volume (it weighs over 8 lbs) is a monument to the author's dedication to ornithology from 1963 for 15 years at the Scientific Research Institute of Angola, from where he amassed 40,000 specimens of 1137 species and subspecies. Traylor's (1963) classic *Check-list of Angolan Birds* recorded 1047 forms. This new work honours Bocage's first volume of *Ornithologie d'Angola* published 100 years ago and "which, even today, forms the basis of our knowledge of Angolan birds".

The lengthy and informative introduction is in Portuguese and English. It covers general matters, quite discursively, including the author's important ornithological antecedents and a detailed explanation of the text's format. There follow historical notes on ornithological research in Angola, a geographical sketch and descriptions of the main habitats and their relationships to bird distribution, the latter aspect in some detail.

The Systematic List is in Portuguese only. Each order and family has a short introduction and each species and subspecies is then treated separately under 4 headings: first there is a very detailed (taxonomic) description based on meticulous examination of skins; second a short paragraph on distribution; third a section on habits, including habitat, feeding, flight, song, status, migration and field characters, including comparisons with other species; and fourth a section on breeding data, including field observations on nests and eggs. There are keys for separating families, genera and species. The author has of necesssity had to create many Portuguese names and has also provided Angolan vernacular names. There are indices of scientific and Portuguese names, but no bibliography with this volume.

A work of this immensity can but be a fundamental treatise, mainly aimed at the museum worker, which will be admired for many decades. It is to be hoped that the second volume will not take the 4 years Bocage required for his second volume and one must add the wish that an English translation, though a major task, can be undertaken soon so that the book can reach a much wider readership.

Bradley, Patricia. 1985. *Birds of the Cayman Islands.* Pp. 245. 7 maps, 72 full page colour photographs by Y.-J. Rey-Millet. Foreword by His Royal Highness The Duke of Edinburgh. Published by P. E. Bradley. UK Distributor: Law Reports International, Trinity College, Oxford, England, Hard laminated covers. 190 x 120 mm. £22.

The author, who lives on Grand Cayman and is the islands representative of ICBP, has written a most useful field guide to cover all species recorded in the Cayman Islands (Grand, Little and Cayman Brac). Following an informative introduction, the species accounts give the field characters, world range, the Cayman habitat, habits and status, including some breeding data. The photographs are portraits of a high standard and provide excellent additional help in identification of 67 species, chosen for not usually being illustrated in other North American guides. There are also 5 habitat scenes. An appendix covers briefly 28 vagrants, there is a checklist of breeding birds and their localities and a selected bibliography. One would deprive oneself if one did not take this well prepared book to the islands, but the price is formidable, even if some of the proceeds do go to WWF (International).

NOTICE TO CONTRIBUTORS

Papers, whether by Club Members or by non-members, should be sent to the Editor, Dr. J. F. Monk, The Glebe Cottage, Goring, Reading RG8 9AP, and are accepted on the understanding that they are offered solely for publication in the *Bulletin*. They should be typed on one side of the paper, with double-spacing and a wide margin, and submitted with *a duplicate copy on airmail paper*.

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Edited by
Dr. J. F. MONK

Volume 105 No. 3 September 1985

FORTHCOMING MEETINGS

Tuesday, 24 September 1985 at 6.20 p.m. for 7 p.m. in the Senior Common Room, Imperial College, Prince's Gardens, South Side, S.W.7, **Dr Nigel Collar & Dr Simon Stuart** on their work on **Threatened Species in Africa.** The cost of dinner is £7.70 a head. Anyone who wishes to come and has not already notified the Hon. Treasurer should telephone her (01-560 1019) without delay. Dr Collar & Dr Smith are the joint authors of the encyclopaedic "Threatened Birds of Africa and Related Islands (The I.C.B.P./I.U.C.N. Red Data Book, Part I)" published this year and have an outstanding knowledge in the field and of the literature regarding threatened African birds.

Tuesday, 15 October 1985 at the same time and venue **Mr A. J. Randall** will speak on **Birds of the Cape Verde Islands.** There will be a hot buffet supper and those wishing to attend should send their acceptance with a cheque for £5.20 a person in time to reach the Hon. Secretary at 2 Chestnut Lane, Sevenoaks, Kent TN13 3AR by first post on Tuesday, 1 October, if possible*. Mr Randall will report on the visit to Cape Verde Islands, the most southerly part of the western Palaearctic, of a recent expedition.

This meeting has been arranged since the publication of the last number of the Bulletin. Those wishing to attend should send their acceptance with a cheque for £5.20 a person in time to reach the Hon. Secretary (address above) by first post on Tuesday, 1 October, if possible.*

***It will be noted that acceptances are now called for a fortnight before the dates of Meetings. This is because we now have to give to Imperial College the approximate number that will attend a fortnight (instead of 5 days) beforehand. It will still be possible to take acceptances up to the weekend before a Meeting but Members are asked to accept by 14 days before a Meeting, if they possibly can, to avoid the possibility of difficulties arising in the event of too substantial a number of late acceptances. It will still be possible to cancel just as late as at present without being charged for the meal and those who accept and subsequently find that they are unable to come should always inform the Hon. Secretary without delay.**

Continued on back cover

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Vol. 105 No. 3 Published: 20 September 1985

The seven hundred and fifty-ninth Meeting of the Club was held in the Senior Common Room, South Side, Imperial College, London S.W.7 on Tuesday, 2 July 1985 at 7 pm. The attendance was 19 Members and 10 guests.

Members present were: B. GRAY *(Chairman)*, Dr J. S. ASH, P. J. BELMAN, Mrs DIANA BRADLEY, D. R. CALDER, P. J. CONDER, J. H. ELGOOD, A. GIBBS, P. A. D. HOLLOM, J. KING, Revd G. K. McCULLOCH, Dr J. F. MONK, P. J. OLIVER, R. E. F. PEAL, R. E. SCOTT, R. E. SHARLAND, N. H. F. STONE, Dr S. N. STUART and Dr J. B. WOOD.

Guests present were: D. BRADLEY, KAREN M. DEVINE, Mrs ISABEL McCULLOCH, Mrs P. J. OLIVER, R. H. W. PAKENHAM, M. PALMER, Mrs ELIZABETH PEAL, Mrs R. E. SCOTT, A. TANNER and Dr W. J. M. VERHEUGT.

The speaker was Dr J. B. Wood, who addressed the Club on ''Waterfowl conservation and wetland management in Tunisia and Algeria''. He pointed out the great importance of certain lakes in Tunisia, especially for wintering Grey Lag Geese *(Anser anser)* and ducks, the latter being present there then in vast numbers, and the problems involved in conservation of the habitat.

ANNUAL GENERAL MEETING

The Annual General Meeting of the British Ornithologists' Club, adjourned from 21 May 1985 *(Bull. Brit. Orn. Cl.* 105; 42), was held at Imperial College, London, S.W.7 on Tuesday, 2 July 1985 at 6 pm with Mr B. Gray in the Chair. 9 Members were present.

The Minutes of the Annual General Meeting held on 22 May 1984 *(Bull. Brit. Orn. Cl.* 104: 37) were approved and signed by the Chairman.

The Report of the Committee for 1984 and the Accounts for 1984 were presented and, on the proposal of Mr P. J. Conder, seconded by Mr J. H. Elgood, they were unanimously received and adopted.

The Editor reported that he continued to receive at a steady rate papers of an acceptable standard for publication in the *Bulletin.*

There being no additional nomination, the following were declared duly elected:

Honorary Treasurer:	Mrs D. M. Bradley (re-elected)
Honorary Secretary:	Mr R. E. F. Peal (re-elected)
Committee:	Mr K. F. Betton *(vice* Mr P. J. Conder, O.B.E., who retired by rotation and was ineligible for re-election)
Editor:	Dr J. F. Monk, nominated by the Hon. Secretary and seconded by the Vice-Chairman in accordance with Rule (1) (his nomination by the Committee having been omitted in error in the notice calling the Meeting) (re-elected).

The following resolution, proposed by the Committee as a special resolution, moved by the Chairman and seconded by the Hon. Treasurer, was considered and passed unanimously:

> ''*(i) That in exercise of the powers conferred by Rule (12) the freehold property known as 'Clovelly' 4 Beaconsfield Road Tring Hertfordshire*

devised to the Club in the Will dated 27th May 1957 of the late Herbert Stevens shall be vested in JOHN GORDON PARKER and PETER JAMES OLIVER and DAVID REGINALD CALDER as Trustees for the Club appointed in accordance with Rule (12).

(ii) That the Trustees shall hold the property upon trust for the Club in accordance with the trusts and with or subject to such powers and provisions as are declared or contained by or in the Trust Deed submitted to the meeting and initialled by the Chairman for the purposes of identification and that such trusts powers and provisions be approved accordingly.

(iii) That the Chairman and the Honorary Treasurer of the Club be and they are hereby authorised to execute the said Deed on behalf of themselves and all other members of the Club."

[The text of the Trust Deed was published in *Bull. Brit. Orn. Cl.* 105: 3-7].

The Meeting closed at 6.17 pm.

Notes on distribution of some Brazilian raptors

by Jorge L. B. Albuquerque

Received 26 October 1984

The following records from Brazil concern extensions and corrections of ranges for the following species: *Geranoaetus melanoleucus, Falco peregrinus* and *Falco sparverius.*

BLACK-CHESTED BUZZARD EAGLE *Geranoaetus melanoleucus*

In Brazil the range extends from the extreme southeast north to southern Sao Paulo (Brown & Amadon 1968, Olrog 1968, Blake 1977) to Minas Gerais (Serra da Caraca, July 1974), Bahia (Raso da Catarina, December 1978), and Piaui (October 1977) (Sick 1979). I recorded an immature close to Campina Grande highlands, Paraiba (7°10′S, 35°45′W) on 4 November 1980, extending the range 1000 km east from Piaui and 500 km north from Raso da Catarina.

PEREGRINE FALCON *Falco peregrinus*

Recorded at Barras (11°S, 43°10′W) (along Sao Francisco River, Bahia) (Albuquerque 1978, Blake 1977). Alfredo Ximenez informs he saw an immature male at Joao Pessoa (7°10′S, 34°45′W) in October 1979, where I later saw adult males November 1981 and March 1980. I also saw Peregrines in coastal mangroves at Cabedelo, Paraiba (7°S, 34°45′W) where North American shorebirds regularly winter (Lamm 1948 and pers. obs.).

Peregrines have been reported to use 3 main migratory routes: along the Andes, through the Amazon forests and along Xingu-Araguaia rivers (Albuquerque 1978). The above records suggest that they may use another route which follows the shorebirds along the northern Brazilian coast.

AMERICAN KESTREL *Falco sparverius*

Breeds in North, Central and South America (Blake 1977). There is an apparent gap in this species range in central and northern Brazil (Brown & Amadon 1968, Balgooyen 1976, Cade 1982) which covers most areas of the central, northern and Amazonian forests of north Brazil. Blake (1977) found

F.s. ceareae in Ceara State in arid northern Brazil – type locality Quixada, Ceara (5°10′S, 38°50′W), Brazil (Cory 1915 in Mayr *et al* 1979) while Olrog (1968) gave the general distribution as virtually all South America. In the Museu Nacional (MN) of Rio de Janeiro and the Museu da Universidade de Sao Paulo (MZUSP) there are a number of specimens of *F. sparverius* as shown in Table 1. Little is still known about its distribution in the Brazilian Amazon region (F. Novaes). Lamm (1948) recorded the species at Pernambuco and Paraiba "even in the most arid sections" and I saw American Kestrels in most months of 1980 and 1981 in the coastal dry forests of Joao Pessoa and Cabedelo, Paraiba (7°S, 34°45′W), north of Pernambuco.

Table 1. Specimens from Brazil (2°N–30°S in southeast and 35°–75°W) of *Falco sparverius* in Museu Nacional (MN) of Rio de Janeiro, Museu de Zoologia da Universidade de Sao Paulo (MZUSP) and Museu Emilio Goeldi (MG) to illustrate its distribution.

Number of specimens	State	Locality	Number collected per month
MN(6) MZUSP(3)	Espirito Santos	Santa Tereza	Jan(2), Feb(1)
		Agua Boa	Nov(1)
		Santa Cruz	Nov(1)
		Estacao Reeve	Dec(1)
		Pau Gigante	Sep(1)
		Rio Itauna	Sep(2)
MN(2)	Bahia	Barreiras	Mar(1)
		Cajazeiras	Dec(1)
MN(7) MZUSP(7)	Goias	Pouso Alto	Feb(1)
		Nova Veneza	Dec(1)
		Aragarcas	Aug(1)
		Brasilia	Aug(1)
		Planalteiro	Jun(1)
		Rio Claro	Jun(1)
		Rio Verde	Jun(3), Jul(1)
		Goiania	Aug(1)
		Jaragua	Nov(1)
MN(10)			
MZUSP(6)	Mato Grosso	Chapada	Nov(2), Jun(1)
		Sao Lourenco	Feb(1)
		Baitapora	Aug(1)
		Salobra	Mar (1)
		Caceres	—(1)
		Porto Quebracho	—(1)
		Rio Sete de Setembro	—(1)
		Jacobina	Nov(1)
		Chavantina	Dec(1)
		Parana	Apr(1), Nov(1)
		Rio Cuiaba	May(1)
		Palmeiras	May(4)
MN(2) MZUSP(4)	Minas Gerais	Barra do Paiaopeba	Apr(1)
		Riberao do Jaboticatuba	Mar(1)
		Rio Sao Francisco	Jul(1)
		Curvelo	Jun(2)
		Macaleo	Dec(1)
MN(1)	Para	Jacareacanga	Aug(1)
MN(1)	Piaui	Campo Maior	Nov(1)
MG(3)	Roraima	Rio Mucajai	Feb(1), Mar(2)

These records show that the distribution of the American Kestrel covers all Brazil except the extreme central Amazonian region, filling the hiatus of former distribution maps. Considering (Table 1) the records from Jacareacanga, a small village on the left side of the Rio Tapajos (Para State) and from Rio Mucajai (Roraima Territory), it is quite possible that the species in fact occurs along the Amazon River as well as its tributaries, and with the rapid rate of deforestation, creating large open areas, it seems possible that the American Kestrel will extend its range.

Acknowledgements: I thank Dr Helmut Sick and Dr Helio Camargo of Museu Nacional (MN) of Rio de Janeiro and Museu de Zoologia da Universidade de Sao Paulo (MZUSP) for their hospitality while examining specimens at their institutions; also Dr Fernando Novaes from Museu Emilio Goeldi (MG) for information about the American Kestrel in Brazilian Amazonia and Alfredo Ximenez for information about peregrines in Joao Pessoa. Dr Clayton White kindly made suggestions on the text. I thank Conselho Nacional de Pesquisas (CNPq) for supporting my graduate work at BYU.

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A specimen of the White-throated Robin *Irania gutturalis* from the Sinai Peninsula

by Steven M. Goodman and Robert W. Storer

Received 22 November 1984

The White-throated Robin *Irania gutturalis* breeds from Turkey south into southern Lebanon and northern Israel, and east through Iraq and Iran into Afghanistan (Vaurie 1959). The vast majority of the breeding populaton winters in East Africa, predominantly in the plateau region of western and central Kenya and northern Tanzania (Britton 1980).

On 30 May 1984 we collected an adult female 8 kms north of Abu Zenima, Sinai Governorate, Egypt (29°03′N, 33°06′E). This appears to be the first record of *Irania gutturalis* from Egypt. The specimen was prepared as a skeleton and partial skin (University of Michigan Museum of Zoology no. 207,127). Measurements from the specimen in the flesh include: wing (arc) 94 mm; tail 72 mm; weight 22.7 gms; ovary 6 x 4 mm (no enlarged follicles). The skull was fully ossified and the fat deposits were classified as little. The bird was taken in the vicinity of a well, which supplied water for a grove of date palms *(Phoenix dactylifera)* and a thick tangle of tamarisk *(Tamarisk* cf. *nilotica).*

Recently this species was recorded for the first time in the Sudan. Nikolaus (1984) reported that at Arba' (19°48′N, 37°03′E) 2 birds in immature plumage were captured on 7 and 17 August 1983 and an adult male appeared on 5 September 1983. Moreau (1972) hypothesized that the populations breeding in Asia Minor passed directly over Egypt and the Sudan into the East African wintering grounds. However, the paucity of records from these 2 countries makes it seem more likely that the Asia Minor breeding population moves into East Africa via the Arabian Peninsula. Further support for the Arabian Peninsula route is that there are no records of this species from Eilat, a site where bird migration has been intensively studied for over 20 years (Safriel 1968, Krabbe 1980). It is striking however that in Saudi Arabia it is an uncommon migrant (Jennings 1981), in Oman a scarce passage migrant (Gallagher & Woodcock 1980), and there are only a few records from North Yemen (Cornwallis & Porter 1982, Phillips 1982). This might be explained by a direct overland flight across the Arabian Peninsula where only a few individuals may fall out. With our present knowledge of the migratory patterns of this species it is impossible to know if the recent records from Egypt and the Sudan are of vagrants or if a second route exists.

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A Sydney specimen of *Neodrepanis hypoxantha* (Philepittidae)

by N. W. Longmore

Received 27 November 1984

The collections of the Australian Museum, Sydney have a number of Madagascan bird skins obtained during the latter part of the 19th Century, representing some 90 species. Through the alertness of A. D. Forbes-Watson, one specimen of a false sunbird, labelled *Neodrepanis coruscans* has been correctly re-identified as *N. hypoxantha.* This represents only the thirteenth known specimen of this apparently rare and little known species (Benson 1976).

Data on the Sydney specimen (AM 0.21592) show that the skin was received into the museum collections late last century, but unfortunately it remained unregistered until 1913, so that information cannot be traced regarding its date of acquisition, collector etc. On the original label is clearly written ''*Neodrepanis coruscans* (sp.), Antananarvia''. The locality possibly refers to Antananariva (=Tananarive), the capital of Madagascar, indicating that this locality was possibly the purchase or shipping place.

The specimen has an emarginated 10th primary measuring 7 mm, which exhibits a strong attentuation. This is a character typical of an adult male and was used by Salomonsen (1933) to separate *hypoxantha* from *coruscans.* The specimen lacks the orbital wattle of the breeding male described by Benson (1971). These characters, together with its coloration, suggest that it is an immature male moulting into breeding plumage.

Description. Crown and nape olive-yellow, a few feathers thinly edged with a blue gloss. Upperback mottled olive and iridescent dark blue; lowerback iridescent dark blue. Rump yellow. Upper-tail coverts yellow-grey with some iridescent blue. Tail black, each feather edged and tipped iridescent dark blue. Sides of face mottled, grading from yellow-olive on the crown to bright yellow on the throat which is narrowly tipped black. Underparts bright yellow. Flanks, bright yellow with a black band extending from the lower back to thighs. Upper-wings: primaries glossy black; secondaries glossy black, outer edge and tips iridescent blue; upperwing coverts iridescent blue, some with yellow-green tips. Under-wings: primaries and secondaries dark brown broadly edged fawn; underwing coverts and alula bright yellow, coverts immediately behind the alula being mottled grey-brown. Bill and feet pale grey-brown in the dried condition.

Measurements (mm): wing 48; tail 21; tarsus 14.5. The tip of the culmen is broken, retaining only 17.4 mm from the base of the skull. Overall the specimen is slightly damaged.

Acknowledgements: I wish to thank A. D. Forbes-Watson for bringing this specimen to my attention, for clarifying points of identification and commenting on an early draft of this manuscript. W. E. Boles also read the manuscript and suggested improvements. A. D. Forbes-Watson assisted with references to literature on other specimens of this remarkable bird.

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Subspeciation in the Karamoja Apalis *Apalis karamojae*

by S. N. Stuart and N. J. Collar

Received 19 November 1984

The Karamoja Apalis *Apalis karamojae,* which we consider a threatened species, occurs as 2 discrete populations in northeastern Uganda and north-central Tanzania (Collar & Stuart 1985). Localities from which the species is known are mapped in Fig. 1.

Hall & Moreau (1962) noted that the *A. karamojae* population in Tanzania, south of Lake Victoria, appears to be darker than that in Uganda. In the British Museum (Natural History) (BMNH) and the National Museum of Kenya (NMK) we have examined 7 of the 11 museum specimens of *A. karamojae* we believe to be in existence, 3 from Uganda and 4 from Tanzania, and we conclude that the Tanzanian birds represent a distinct subspecies:

Apalis karamojae stronachi subsp. nov.

Type. Male collected on 19 February 1962 by I. H. Dillingham and

B. W. H. Stronach at Ngongoro, 1150 m, in the Wembere Steppe, Nzega District, Tanzania. No. 1962.10.8 BMNH.

Description. Differs from the nominate form in being darker. The upperparts are a darker brownish-grey on the mantle, back, rump and uppertail-coverts; the underside of the male is mottled grey against a very pale creamy-white background; the grey on the throat is very pale, being much darker on the breast and flanks and paler again on the belly. In contrast, the male of the nominate form has creamy-white underparts with the exception of the flanks which are grey. The females of *stronachi* have creamy-white underparts with a slight but variable suffusion of grey. Within both subspecies the male plumage is consistently darker than that of the female, though it is necessary to confirm this by examining more specimens. The female of the nominate form is the palest, with a white underside and only a slight creamy suffusion, while females of *stronachi* are only slightly darker than nominate males. Previous

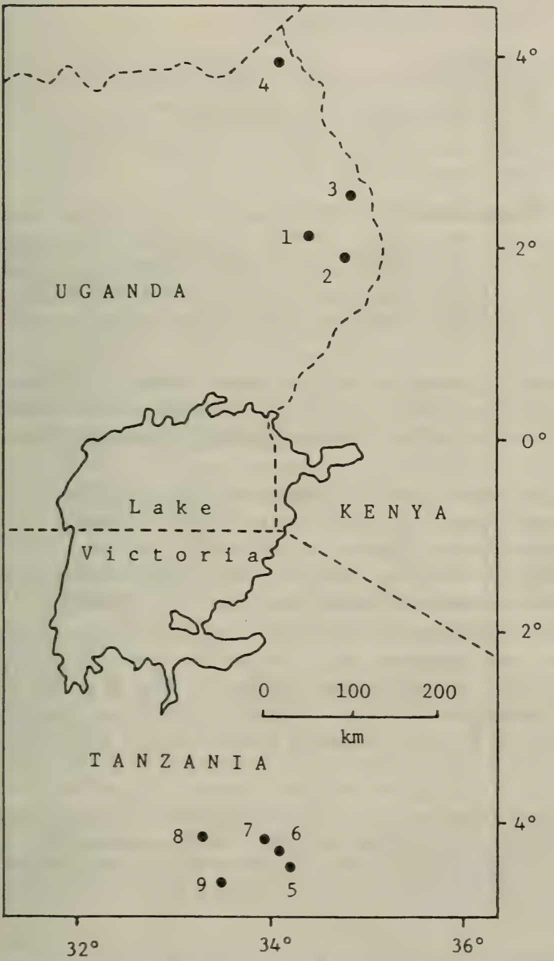

Figure 1. Distribution of *Apalis karamojae*. Key to numbers: 1. Mount Kamalinga (van Someren 1921a, b, 1922). 2. Napiananya (=Mount Kadam) (Hall & Moreau 1962). 3. Mount Moroto (Hall & Moreau 1962). 4. Kanatorok, in Kidepo Valley National Park (Elliott 1972). 5. Itumba, Wembere Steppe (Hall & Moreau 1962). 6. Ngongoro (specimen in BMNH). 7-9. Igunga – Nzega – Ndala triangle (R. K. Walton).

descriptions of the species have not noted any plumage difference between the sexes (e.g. Mackworth-Praed & Grant 1960), presumably on account of the very small number of specimens available for study. The occurrence of white on the innermost secondaries and outermost rectrices appears to be identical in both subspecies.

TABLE 1

Measurements (mm) of *Apalis karamojae*
(means are enclosed in brackets)

	A. k. karamojae	*A. k. stronachi*
Wing (chord)	49, 50, 50 (49.7)	52, 52, 54, 55 (53.3)
Tail	43, 47 (45.0)	47, 47, 49, 50 (48.3)
Tarsus	17.0, 17.4, 19.1 (17.8)	17.8, 18.5, 18.5, 19.1 (18.5)
Culmen from base	15.8, 16.5, 16.8 (16.4)	15.3, 16.3, 16.3, 16.7 (16.2)

Measurements (in mm). Wing (chord) 55, tail 49, tarsus 17.8, culmen from base 16.3. Other measurements are given in Table 1. A slight trend to larger size in *stronachi* is indicated, at least from wing and tail lengths, but data remain insufficient to draw firm conclusions. One female of the nominate form had a weight of 9.0 g (from specimen label) but there are no weight data for *stronachi.*

Range. The race *stronachi* is restricted to the Nzega District in Tabora Region in north-central Tanzania, from Nzega east to Igunga and the Wembere Steppe at Ngongoro and Itumba, south to Ndala (details in Collar & Stuart 1985).

Specimens examined. A. k. karamojae (3). Napiananya, Karamoja District, Uganda, 1 ♂ (BMNH); Kanatorok, Kidepo National Park, Uganda, 1 ♀ (BMNH); Moroto, Karamoja District, Uganda, 1 ♂ (NMK).

A. k. stronachi (4). Ngongoro, Wembere, Nzega District, Tanzania (type), 1 ♂ (BMNH); Itumba, Wembere, Nzega District, Tanzania, 3 ♀♀ (NMK).

Remarks. We name this subspecies in honour of the late B. W. H. Stronach, one of the collectors of the type-specimen. *Apalis karamojae* is a very poorly known species, and what little is recorded of its ecology is given in Collar & Stuart (1985), where it is also noted that *stronachi* is likely to be threatened by habitat changes resulting from a heavy increase in the human population within its range.

Acknowledgements: We thank I. H. Dillingham, J. F. Reynolds, the late B. W. H. Stronach and R. K. Walton for providing information on the distribution of *Apalis karamojae stronachi.* We are grateful to P. R. Colston and I. C. J. Galbraith for allowing us to examine specimens at BMNH, Tring, and S.N.S. wishes to thank Mr G. R. Cunningham-van Someren and Mrs C. M. Gichoki for their help during his visit to NMK, Nairobi.

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Post-mortem changes in morphology and its relevance to biometrical studies

by M. Herremans

Received 10 December 1984

Post-mortem shrinkage in wing-length is well-documented (Barth 1967, Vepsäläinen 1968, West *et al.* 1968, Green & Williams 1974, Prater *et al.* 1977, Green & Greenwood 1978, Greenwood 1979, Green 1980, Knox 1980, Haftorn 1982, Bjordal 1983). Wing-length was found to diminish by from 0.39% in Willow Ptarmigan (West *et al.* 1968) to 3% in waders (Prater *et al.* 1977). There is less information available concerning the other standard measurements of birds. West *et al.* (1968) mention tail-shrinkage of 0.69%, but Bjordal (1983) found tail measurements to increase after specimens had dried. Bills have been reported to shrink by 1.6-5.4% in waders (Summers 1976) but no significant changes were found in Dunlins *Calidris alpina* by Greenwood (1979), nor in House Sparrows *Passer domesticus* by Bjordal (1983). Tarsus length did not change in Dunlin (Greenwood 1979), but diminished significantly in House Sparrows (Bjordal 1983). Vepsäläinen (1968), Kelm (1979) and Bjordal (1983) explained the discordance between results by stressing differences in methods of measuring, storing and preparation.

However, the real problem concerning the relevance of post-mortem changes to biometrical studies is not the significance of shrinkage traced on individuals, but to know if populations, predicted from measuring the sample before and after preparation, are statistically different. It will be shown here that the range of normal variation within a population is largely sufficient to buffer even the most significant post-mortem changes.

During the second Belgian expedition to the Comoro Islands, field conditions forced us to preserve some specimens by sun-drying after injection with concentrated formalin. Before taking these specimens into account in a comprehensive study on *Hypsipetes* (Pycnonotidae) (Louette & Herremans, in press), reliability of their measurements when compared to traditional skins was tested. A number of specimens of both *H. madagascariensis* and *H.p. parvirostris,* siblings with a very large overlap of dimensions (Benson *et al.* 1975) were remeasured after 10 months storage in the museum. Significance of difference was analysed using the "paired-sample t-test" when comparing these measurements to their corresponding life or freshly-killed original values. Difference between "fresh" and "museum" samples was tested using "analysis of variance" (ANOVA) on the same data.

TABLE 1

Biometry of the same *Hypsipetes* spp. individuals, fresh and after preparation and 10 months storage (all measurements in mm to 0.1 mm). Significance of difference (paired t-test) and comparison between samples (ANOVA)

	Individuals				
	as fresh specimens	as museum specimens	Difference	Paired t-test	ANOVA
Maximum wing-chord N=36					
X	111.50	110.99	−0.51		
SD	4.46	4.30	0.57	t(df=35)=5.44	$F^{1}_{70}=0.24$
Range	100.5 − 120	99.5 − 118.5	−2.5 − +0.5	P<0.00001	P=0.62
Tail N=36					
X	92.44	93.51	+1.04		
SD	4.10	4.11	1.63	t(df=35)=3.83	$F^{1}_{70}=1.22$
Range	83 − 100.6	84.4 − 101.3	−2.6 − +4.3	P=0.00051	P=0.27
Tarsus N=44					
X	20.55	20.74	+0.19		
SD	1.18	1.24	0.39	t(df=43)=3.2	$F^{1}_{86}=0.54$
Range	18.3 − 23.2	18.6 − 23.5	−0.5 − +1.2	P=0.0026	P=0.46
Culmen to skull N=34					
X	25.80	25.74	−0.06		
SD	0.99	1.08	0.48	t(df=33)=0.75	$F^{1}_{66}=0.06$
Range	23.3 − 27.5	22.6 − 27.6	−1.25 − +1.45	P=0.46	P=0.81

Table 1 details descriptive statistics and results of analyses of the above specimens. The c. 0.5% shrinkage in wing-length is extremely significant and the c. 1% increase in tail and tarsus both constitute considerably significant changes. I agree with Bjordal (1983) that increase in tail length must be due to retraction of the skin between the rectrices and of the papillae themselves during drying; besides, it is a known phenomenon that calipers can be inserted deeper each time a tail measurement is repeated. Difference in tarsus length may be explained by the inability to apply exactly the same measuring procedure on a fresh and a dried-out leg, as also already explained by Bjordal (1983). Individual differences in response to post-mortem changes – stressed also by Greenwood (1979) and Green (1980) – are illustrated by ranges and standard deviations of the "Difference" column in Table 1. This relatively wide variation did, however, not substantially influence standard deviations of the museum sample.

Despite the 3 statistically significant post-mortem changes found, ANOVA proves that both fresh and museum samples must be considered identical in all measurements. Obviously, the rather large variations of the population (c. 15-25%), partly caused by sexual dimorphism, easily masks the comparatively small, but fairly consistent, post-mortem changes (0.5-1%).

If these data on formalin preserved *Hypsipetes* are found to be generalised, it seems there is no objection to using both museum and life measurements in one study at population level. When diversely obtained measurements of specimens of different preparations and duration of storage, including those of live birds, are used together, analysis may only show the disadvantage of decreased statistical discernibility by shortage of significance, due to increased variation within samples. Similar conclusions will probably be found when considering inter-operator differences in measurements.

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Abnormal numbers of tail feathers

by D. B. Hanmer

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Occasionally birds have been found to have abnormal numbers of rectrices (Stresemann & Stresemann 1966, Hanmer 1981, Somadikarta 1984).* In some there was a pair of rectrices either missing or additional, but more often there were unequal numbers on either side of the tail. Hence I propose "anisorectricial" to describe tails with an abnormal number of rectrices, that is with a number that is unequal to the normal or with an unequal number on the 2 sides, as opposed to "polyrectricyly" (Somadikarta 1984).

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*"Ed Mr Geo. A. Smith informs me that the oldest reference for an abnormal number of tail feathers may be the copper-plate engraving of the Carolina Conures *Aratinga (Conuropsis) carolinensis* of Audubon's (1827-38) *The Birds of America.* In *Ornithological Biography* (1831) he tells how the upper bird in the illustration, a female, had '. . . 14 Tail feathers all 7 sizes distinct and firmly affixed in 14 different receptacles . . .' and that he drew it '. . . to verify one of those astonishing fits of Nature . . .'."

TABLE 1

Anisorectricial specimens of birds from Nchalo, Malaŵi and Mopeia, Mozambique

Species	No. examined	No. of anisorectricial birds				% abnormal
		2 less	1 less	1 more	2 more	
Non-passerines						
Streptopelia capicola	20			1		5.00
S. senegala	65		1	1		3.08
S. decipiens	57		1			1.75
Oena capensis	42			1		2.38
Turtur afer	53			1		1.89
T. chalcospilos	193		3	3		3.11
Treron australis	8				1	12.50
Caprimulgus fossii	173			2	2	2.31
Colius striatus	563	27	7			6.04
Urocolius indicus	85			1	4	5.88
Alcedo cristata	239			1		0.42
Ispidina picta	335		1			0.30
Halcyon leucocephala	82			1		1.22
Merops pusillus	387	1				0.26
Indicator minor	38	1				2.63
Passerines						
Pycnonotus barbatus	779		4	4	1	1.16
Phyllastrephus terrestris	188		1			0.53
Andropadus importunus	792	2	4			0.76
Cossypha natalensis	68			2		2.94
C. heuglini	50		1			2.00
Passerines (cont.)						
Acrocephalus arundinaceus	406		1			0.25
A. palustris	180		1			0.56
A. gracilirostris	191		1	1		1.05
Cisticola brachyptera	62		1			1.61
C. erythrops	135		1			0.74
Prinia subflava	54			1		1.85
Terpsiphone viridis	238		1			0.42
Platysteira peltata	37	1				2.70
Nectarinia cuprea	288			2		0.69
N. venusta	207	1				0.48
N. talatala	162		1			0.62
N. senegala	318		1	1		0.63
Passer griseus	51		1			1.96
Ploceus intermedius	930		1	1		0.22
P. cucullatus	1135		5	1		0.44
P. subaureus	297		1			0.34
P. xanthopterus	2238		4	1		0.22
P. velatus	413	1		1		0.48
Amblyospiza albifrons	325		4	1		1.54
Euplectes orix	1501		1	1		0.13
E. capensis	189				1	0.53
Lagonosticta rhodopareia	250		1			0.40
L. senegala	381	1	1			0.52
Uraeginthus angolensis	529			1		0.19
Serinus sulphuratus	234		2			0.85

At Nchalo, Malaŵi (16° 16′S, 34° 55′E), c. 20,300 birds have been handled and 115 of 42 species were anisorectricial, though there may have been more, since rectrices were not always counted when no moult was in progress. However, among the 7200 recaptures, which were usually more carefully examined, few anisorectricial cases were found which had not already been noted, so that probably few cases were overlooked. At Mopeia, Mozambique (17° 56′S, 35° 37′E), 2500 birds were handled and 11 birds of 8 species were found to be anisorectricial. All 126 individuals of 45 species are included in Table 1.

Among the non-passerines, extra rectrices were more common than absent ones, except in the Speckled Mousebird *Colius striatus* (see below). Passerines more commonly had a reduced number of rectrices, but extra ones were found in 20 birds.

TABLE 2

Families (and genera) in which anisorectricial birds were found at Nchalo, Malaŵi and Mopeia, Mozambique

Family (and genus)	No. examined	No. aberrant	% aberrant
Columbidae	455	12	2.64
Treronidae	8	1	12.50
Caprimulgidae	180	4	2.22
Coliidae	648	49	6.02
Alcedinidae	757	3	0.40
Meropidae	505	1	0.20
Indicatoridae	52	1	1.92
Pycnonotidae	1793	16	0.89
Turdidae	268	3	1.12
Sylvidae	2383	6	0.25
(Acrocephalus	1258	4	0.32)
(Cisticola	329	2	0.61)
Priniidae	54	1	1.85
Muscicapidae	348	2	0.57
Nectariniidae	1304	6	0.46
Ploceidae	7979	25	0.31
(Passer	139	1	0.72)
(Ploceus	5113	16	0.31)
(Amblyospiza	325	5	1.54)
(Euplectes	1933	3	0.16)
Estrildinidae	2530	4	0.16
Fringilidae	420	2	0.48

The Red-faced Mousebird *Urocolius indicus* at Nchalo appears to have evolved 10 rectrices as the normal, since only 5 (5.88%) were found with 11 or 12. On the other hand, the Speckled Mousebird, although still usually found with 12, had only 10 or 11 in 34 (6.04%) birds. In these species the extra or missing rectrices were always one or both of the outermost pair, which may, therefore, no longer be a functional necessity. In all the other species it is not known which rectrices were the aberrant ones, since the rectrices on either side of the central pair remained evenly spaced across the pygostyle, slightly more spaced out if there were too few and more cramped where there was an extra rectrix. The central pair was never found to be aberrant.

Table 2 lists the families in which anisorectricial birds were found. In certain families the percentage of birds which were anisorectricial was higher than the average for all specimens, namely 0.55%. If the mousebirds are excluded, since the very high percentage of abnormalities in the 2 species suggests that a different process may be involved to that causing abnormalities in other families, the average is only 0.35%. However, in many of these families only one bird of one species has been found to be anisorectricial and where only small numbers of a species or family have been caught, the high percentage is probably not a valid figure; one would not, for example, expect one Green Pigeon *Treron australis* in every 9 to have 14 rectrices. The families in which anisorectricial birds seem to be fairly common, apart from the Coliidae, are the doves Columbidae, one species of nightjar Caprimulgidae, bulbuls Pycnonotidae, sunbirds Nectariniidae, some species of weaver Ploceidae and possibly the robin-chats Turdidae.

The cause of this abnormality is unknown, although in the prinia and nightjar, which normally have only 10 rectrices, extra ones could be of phylogenetic origin. The mousebirds at Nchalo appear to be undergoing a genetic reduction, just starting in the Speckled Mousebird and probably of recent origin in the Red-faced Mousebird (*vide* the high percentage still with 11 or 12 rectrices). Elsewhere the Red-faced Mousebird apparently normally still has 12 rectrices, as R. K. Brooke informs me he has found only 2 with 10 rectrices. A Scarlet-chested Sunbird *Nectarinia senegala* probably had some congenital abnormality, as it had 10 rectrices normally placed on the pygostyle, plus 2 extra on one side and one on the other, 2 mm distant from the rest of the rectrices and growing from the skin at the base of the pygostyle. A possibly hereditary aberration occurred in a female Sombre Bulbul *Andropadus importunus* and her chick which both had 11 rectrices. Another Sombre Bulbul, not included among the 126 aberrant birds, had only 9 rectrices, but there appeared to be some scar tissue on the pygostyle, so that this abnormality presumably had been caused by injury.

Despite fairly large numbers having been examined (a total of c. 3000), no members of the cuckoos Cuculidae, woodpeckers Picidae, swallows Hirundinidae, cuckoo-shrikes Campephagidae, drongos Dicruridae, orioles Oriolidae, pipits and wagtails Motacillidae, shrikes Lanidae and parasitic finches *Vidua* have found to be anisorectricial, although this does not exclude its occurrence.

Hanmer (1981) gave the percentage of anisorectricial birds at Mopeia and Nchalo up to the middle of 1981 as 0.6% (actually 0.55%). (It should be noted that the total number of birds handled (20,500) was given in error for the number of different individuals handled (17,000), although the percentage was correctly calculated from the latter figure.) The present paper includes all those cases found up to 1981, together with those found in the following 3½ years and the result is identical, while the families in which a higher than normal proportion was anisorectricial remained the same as prior to 1981.

Few of the abnormal birds have been retrapped after one or more complete moults, but 6 which were examined a year or more later were found still to be anisorectricial; 2 Black-eyed Bulbuls *Pycnonotus barbatus,* one Sombre Bulbul and 3 Brown-throated Weavers *Ploceus xanthopterus.* This supports the suggestion that the condition is constant in the life of the bird concerned.

In addition to the anisorectricial birds found at Mopeia and Nchalo, 3 South African Sacred Ibis *Threskiornis aethiopicus* had 13 rectrices (Lowe *et al.* in press), one South African Martial Eagle *Polemaetus bellicosus* had 11 and 2

Red-faced Mousebirds had 10 (R. K. Brooke) and 2 Antarctic Pintado Petrels *Daption capense* had 15 instead of 14 (Bierman & Voous 1950). Broekhuizen & Liversidge (1954) examined the tails of 3682 South African Gannets *Morus capensis,* but make no mention of anisorectricial individuals, so presumably they do not occur (or very seldom) in this species. Odd numbers of rectrices are not rare in swans and some other birds (Newton 1896). C. S. Roselaar in Cramp & Simmons (1977) states that in the Mute Swan *Cygnus olor* and Bewick's Swan *C. columbianus* the number of rectrices varies between 20 and 24, but that it is "always" 20 in the Whooper Swan *C. cygnus.*

Newton (1896) suggests that since tail feathers are always paired, it seems reasonable to assume, where one of a pair is missing, that the germ of the missing feather has died due to injury. This seems indeed possible and could be the cause of the abnormality found in many of the anisorectricial birds at Nchalo and Mopeia; but it does not explain extra tail feathers.

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Further examples of abnormal rectrices and a case of an extra primary

by David S. Melville

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Somadikarta (1984) reported the occurrence of additional rectrices, which he termed polyrectricyly, in 14 species of birds. However he overlooked a paper by Hanmer (1981), who has since reported (1985, this issue) that additional or missing rectrices were found in 0.55% of some 22,800 birds caught for ringing in East Africa, describing such birds as anisorectricial. Extra rectrices also have been recorded in various other species including Mute Swan *Cygnus olor,* Greylag Goose *Anser anser,* Canada Goose *Branta canadensis,* Wigeon *Anas penelope,* Gadwall, *A. strepera,* Mallard *A. platyrhynchos,* Capercaillie *Tetrao urogallus,* Quail *Coturnix coturnix,* Coot *Fulica atra,* Stone Curlew

Burhinus oedicnemus, Common Snipe *Gallinago gallinago,* Great Snipe *G. media,* Black Guillemot *Cepphus grylle* and Common Kingfisher *Alcedo atthis* (Snow 1967, Cramp & Simmons 1977, 1980, Ginn & Melville 1983).

In 1976 I found an injured first-year Black-eared Kite *Milvus migrans lineatus* at Kai Tak Airport, Hong Kong, which had 13 rectrices. This bird was kept in captivity until mid-1980 during which time it went through 3 full moults, the extra rectrix being regrown each time. On 30 June 1984 I found a freshly dead Lesser Black-backed Gull *Larus fuscus* at Cliffe Marshes, North Kent, England, which was moulting into second-winter plumage (inner 3 primaries growing) and had 13 old, first-year rectrices.

Cases of ''extra'' primaries are much less common than those of extra rectrices (Stresemann 1963, Snow 1967). On 24 February 1981 I caught a Red-necked Stint *Calidris ruficollis* at Samut Sakhan, near Bangkok, Thailand. The bird was in primary moult, the outer 2 primaries (9 and 10) still growing, and both wings had a remicle. The left wing had 8 fully grown, slightly worn, inner primaries, but the right wing had 9. The extra primary in the right wing appeared to be between the third and fourth primaries (descendant) where the feathers were crowded, all other primaries being normally spaced. The bird was ringed and released.

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Notes on the birds of Gau Island, Fiji

by Dick Watling

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Gau Island lies only 80 km from Suva, Fiji's capital on the island of Viti Levu, yet its birds have been very poorly studied and have never been comprehensively listed. There are only 4 records of ornithological work on the island. HMS 'Herald', undertaking a cartographical survey visited the island twice, September-November 1854 and September-October 1855. John MacGillivray was the vessel's naturalist in 1854, but he was dismissed early in 1855 when the 'Herald' was in Sydney (A. C. David). On the subsequent visit the Medical Officer, Dr F. M. Rayner had assumed responsibility as naturalist. There are 3 separate registrations at the British Museum containing birds collected on Gau during the visits of HMS 'Herald': 1856.8.30; 1859.1.10 (Rayner); 1859.6.14 (Stevens, a dealer, but annotated 'coll. by MacGillivray') (I. C. J. Galbraith). Eleven species were collected.

The Whitney South Sea Expedition visited Gau, 17-20 February 1925. The Expedition's collectors R. H. Beck, J. Correia and N. Hicks collected 12 species, whilst Beck's Journal (Vol. 2: 131-131a – deposited at the American Museum of Natural History) records the presence of one other.

Smart (undated) and Lovegrove (1984) made brief visits to Gau in search of the Fiji Petrel *Pseudobulweria macgillivrayi,* but recorded no other ornithological observations.

The present account is based on a total of 71 days during 8 visits to Gau May 1983 to July 1985. A limited amount of mist netting was done (28 mist net/days). Observations were not standardised and were incidental to the main objective of the visits, a search for the Fiji Petrel.

GAU ISLAND

Gau (or Ngau, the phonetic spelling which appears on many charts) is Fiji's fifth largest island with an area of 140 km^2. It lies 60 km east of Viti Levu (18° 00′S, 179° 16′E) and is the southernmost island of the Lomaiviti Group, which lies at the centre of the whole Fiji Archipelago. The island is of volcanic origin with a very rugged topography. Dominating the north of the island are the twin peaks of Delaco (715 m) – the summit – and Delacoboni (705 m). 54% of the land area, comprising the high land in the north and main ridge running south, support dense rainforest (Watling & Lewanavanua 1984), much of it mature and presently undisturbed. However, massive earthworks on many of the ridges indicate extensive use of these areas as fortified refuges in times of tribal warfare (pre 1850). The areas of rolling country at both extremities are open, with grass or reed *(Miscanthus* sp.) covering, but are being increasingly planted with *Pinus carribaea.*

There are 16 villages on the island all located on the coast and connected by an all-weather road. The population was 2674 in 1976. The island is served by 3 weekly flights from Suva and approximately every week by small inter-island traders.

Yaciwa Island is a limestone islet of c. 2 ha, 1 km off the southern coast, densely covered in brush and stunted trees. The islet is used as a roost by seabirds, and small numbers of one or two species breed there.

SPECIES ACCOUNTS

Species collected by either 'Herald' or Whitney personnel are indicated by the name in parenthesis at the end of each species account. Records of abundance noted in the Journals of the Whitney collectors, Beck and Correia, are referred to in each species account.

COLLARED PETREL *Pterodroma brevipes*

This petrel appears to breed on Gau in large numbers. Watling (in prep.) gives measurements, stomach content analyses and details of plumage variation. Occupied burrows were found in heavily disturbed-secondary forest at 100 m (asl) and also in mature, undisturbed forest at 460 m, but nesting probably continues right up to the highest ridges, where remains were found in feral cat scats. Nesting burrows were excavated into soil between tree roots, under fallen logs and in exposed areas. A clear flight path through the canopy near the nesting site was not apparently needed. Nocturnal display flights take place over the high ridges right up to and including the summit. There would appear to be a closely synchronised breeding season, the young fledging mainly in July and August.

FIJI PETREL *Pseudobulweria macgillivrayi*

This 'lost' petrel (Bourne 1965) was re-discovered when a single individual was captured and then released, 30 April 1984 (Watling & Lewanavanua 1984, 1985. See also Imber 1985). ('Herald')

WHITE-TAILED TROPICBIRD *Phaethon lepturus*

A single individual seen offshore, July 1984.

MASKED BOOBY *Sula dactylatra*

Several individuals seen offshore, July 1984, and 3 close to Yaciwa Is, May 1984.

BROWN BOOBY *Sula leucogaster*

One bird seen offshore, July 1984.

RED-FOOTED BOOBY *Sula sula*

Several birds seen offshore, July 1984 and off Yaciwa Is, May 1984. 3 unoccupied nests on Yaciwa were probably of this species.

WESTERN REEF HERON *Egretta sacra*

Common. Both white and grey birds, but no mottled phase, were seen.

MANGROVE HERON *Butorides striatus*

One or two regularly seen at the edge of mangroves near Sawaieke village and its extensive mudflats. (Whitney)

BLACK DUCK *Anas superciliosa*

1 flock of 4 birds seen flying. (Whitney)

FIJI GOSHAWK *Accipiter rufitorques*

Common. Courtship activity noted, August 1983. (Whitney)

SWAMP HARRIER *Circus approximans*

Common. One bird seen flying across to Yaciwa Is.

BANDED RAIL *Gallirallus philippensis*

Common.

WHITE-BROWED CRAKE *Poliolimnas cinereus*

Not seen. The Herald specimen is the only record from Gau. There are no lakes or ponds and little swampland on the island, whilst the irrigated Taro terraces, extensive in former times, with one or two exceptions have been abandoned (Watling in press). There appears to be little suitable habitat for this species now, although it could still survive. ('Herald')

SPOTLESS CRAKE *Porzana tabuensis*

Not seen by me, but local reports of its presence are frequent and are considered reliable. ('Herald', Whitney)

PURPLE SWAMPHEN *Porphyrio porphyrio*

Seen once and heard several times. Villagers consider it common and an agricultural pest.

LESSER GOLDEN PLOVER *Pluvialis dominica*

Up to 10 present on the extensive Sawaieke mudflats, November 1983. Otherwise absent or only singletons seen. The paucity of waders on the island was most surprising.

WANDERING TATLER *Heteroscelus incanus*

Presumed to be this species rather than *H. brevipes* on the basis of the long trilling call. Never more than 6 birds seen on the Sawaieke flats, November 1983, April 1984. ('Herald')

BLACK-NAPED TERN *Sterna sumatrana*

Small flocks of less than 15 individuals seen off Yaciwa Is and Moana Point. (Whitney – recorded in Beck's Journal but not collected.)

CRESTED TERN *Sterna bergii*

Common. ('Herald')

COMMON NODDY *Anous stolidus*

Large flocks seen offshore, July 1984.

WHITE-THROATED PIGEON *Columba vitiensis*

Flocks of 2-4 seen on 3 occasions on the fringes of cultivation, not in the forest. ('Herald')

SPOTTED TURTLEDOVE *Streptopelia chinensis*

This introduced species is present but rare and is probably a recent arrival. Some villagers believed that it had been purposely brought from Viti Levu.

PEALE'S PIGEON *Ducula latrans*

Common in the forest. It's barking call is sometimes heard at night. Described by Beck as common. (Whitney)

MANY-COLOURED FRUIT DOVE *Ptilinopus perousii*

Surprisingly neither seen nor heard in the forest, but individuals noted on 5 occasions at lower elevations on the fringes of agricultural land. ('Herald')

GOLDEN DOVE *Ptilinopus luteovirens*

Heard commonly in the forest but rarely seen. (Whitney)

FRIENDLY GROUND DOVE *Gallicolumba stairii*

It's characteristic mournful call was heard on several occasions, but no birds were seen.

COLLARED LORY *Phigys solitarius*

Only seen twice and obviously rare, surprisingly so, as they are conspicuous birds.

RED-BREASTED MUSK PARROT *Prosopeia tabuensis*

Very common in forest, bush and even on agricultural land. The population of this distinctive and most handsome race *(P.t. tabuensis)* appears to be thriving. It was described as common by Beck. On Gau, nesting is during the 'normal' season (Watling 1982), with fledglings seen in October and November. In February 1983, I found the presumed introduced population of the same race quite common on 'Eua, Tonga (see Amadon 1942), although there is considerable habitat destruction taking place. ('Herald', Whitney)

BARN OWL *Tyto alba*

Seen once; well known to the villagers.

WHITE-RUMPED SWIFTLET *Aerodramus spodiopygia*

Common.

WHITE-COLLARED KINGFISHER *Halcyon chloris*

Common in all habitats.

PACIFIC SWALLOW *Hirundo tahitica*

Several pairs nest under the Nawaikama jetty.

RED-VENTED BULBUL *Pycnonotus cafer*

A small population of this introduced species is present on the island, unnoticed by the villagers. Presumably it is a fairly recent arrival.

ISLAND THRUSH *Turdus poliocephalus*

Common to uncommon in the forest. Correia described it as very rare. The female of Gau's distinctive race *T.p. hades* is still undescribed (Mayr 1941). (Whitney)

FIJI SHRIKEBILL *Clytorhynchus vitiensis*

Common in the forest. Described as not rare by Beck. (Whitney)

VANIKORO BROADBILL *Myiagra vanikorensis*

Common in village and agricultural areas but surprisingly scarce in the forest. An occupied nest, 7 m up in a Lemon Tree, November 1983. ('Herald', Whitney)

GOLDEN WHISTLER *Pachycephala pectoralis*

Common in the forest. Described as common by Beck. The song is short, 2-3 syllables with a weak whip-lash ending. ('Herald', Whitney)

GREY-BACKED WHITE-EYE *Zosterops lateralis*

Present, but not common, in bush and on the agricultural fringes. (Whitney)

LAYARD'S WHITE-EYE *Zosterops explorator*

Common in the forest canopy. 2 collected and deposited as whole specimens with the Fiji Museum (November 1983). Weights (g) 14, 12; Wing (mm) 61, 59; Tail (mm) 35, 31. The smaller specimen was a recently fledged young. The adult had a brood patch.

ORANGE-BREASTED HONEYEATER *Myzomela jugularis*

Abundant in all habitats. Fledglings netted November 1983.

RED AVADAVAT *Amandava amandava*

One flock of 10-13 birds of this introduced finch was seen between Sawieke and Qarani on 2 occasions. Probably a spontaneous and, judging by its status, a recent arrival.

POLYNESIAN STARLING *Aplonis tabuensis*

Common in forest and on agricultural fringes. (Whitney)

FIJI WOODSWALLOW *Artamus mentalis*

Present in most open areas. ('Herald')

DISCUSSION

The avifauna of Gau apears to be poor in both composition and abundance of species when the relatively large size of the island is considered, together with its enormous area of undisturbed forest and its proximity to Viti Levu – the richest avian colonising source. Its avifauna can be usefully compared with those of the islands of Ovalau and Kadavu. Species notably absent from Gau but present on Ovalau (104 km^2 and 16 km from Viti Levu) are Spotted Fantails *Rhipidura spilodera,* Black-faced Shrikebills *C. nigrogularis* (an inconspicuous species whose presence on Gau may be revealed by further investigation) and the Red-throated Lorikeet *Charmosyna amabilis.* Of these only the latter has not colonised Kadavu (408 km^2; 80 km), but Kadavu has, in addition, the Scarlet Robin *Petroica multicolor.* (The Fantail there is the allospecies *R. personata.)* The Fiji Warbler *Vitia ruficapilla,* an inhabitant of forest and any dense secondary scrub, has reached Kadavu, but neither Ovalau nor Gau.

Conditions on Gau seem suitable for all these species and it is surprising that none has colonised the island. They are, however, all predominantly forest species, a group which in general has poor dispersal ability in insular avifaunas, which is not normally the case for species of open country and secondary habitats. It is therefore even more interesting that Gau is without the Slaty Flycatcher *Mayrornis lessoni,* the Wattled Honeyeater *Foulehaio carunculata* and the Polynesian Triller *Lalage maculosa,* 3 species which have a wide habitat tolerance and are usually very common wherever they occur. Their distributions encompass the entire archipelago, even many of the smallest islands with no forest remnants, though the Wattled Honeyeater is replaced by the endemic *Xanthotis provocator* on Kadavu.

Other interesting features of Gau's avifauna include the absence of the Jungle Fowl *Gallus gallus,* an aboriginal introduction which is common on the smaller nearby islands of Makogai, Wakaya and Koro, and the rarity of the Collared Lory. In the absence of the Wattled Honeyeater, a potential but unlikely competitor, the lory might be expected to be numerous. On the other hand the small Orange-breasted Honeyeater is abundant. Another species at surprisingly low density is the Many-coloured Fruit Dove.

There is no evidence from the species collected or noted by the 'Herald' and the Whitney Expeditions that any species have been lost from Gau in the intervening period, but their collections are too imperfect to allow judgement as to any species gains. It is surprising, however, that the Whitney Expedition did not collect Layard's White-eye which is very common in Gau's forest. It is a Fijian endemic with a restricted distribution, a species they would normally have collected wherever possible. They did collect the less common Grey-backed White-eye on Gau and Beck noted in his journal ". . . and white-eyes are common" (Vol. 2: 131a). It is possible he was referring to Layard's White-eye but if so, he was making an uncharacteristic mis-identification. Three months previously in Kadavu he had distinguished Layard's White-eye as the "yellow-breasted white-eye" (Vol. 2: 95) whilst in Vanua Levu (Vol. 2: 108) he noted "Both white-eyes common". Again in Taveuni he referred to Layard's White-eye as 'yellow white-eyes" (Vol. 2: 110). So it is clear that he was well aware of the co-existence of the 2 species in Fiji. Whether or not Layard's White-eye is a recent immigrant on Gau, its presence there is an important range extension for this Fijian endemic.

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Spurs and ornaments among *Polyplectron* (Phasianidae)

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The generic name *Polyplectron* means "many spurred", and spur numbers greater than one per leg have been recorded in all 6 pheasants of the genus. This paper describes the variations in armature within and between species, and their relationship to age, body size and plumage extravagance.

Only males have spurs: they are sharp, slightly curved, with a bony core and keratinous sheath, and arise from the rear face of the tarsus. Two spurs on a leg are usually well separated, but a third and a fourth grow by doubling of the others (Davison 1985).

Spurs in *Polyplectron* are presumably important in intrasexual fighting (Geist 1977), as described for the Malaysian Peacock Pheasant *P. malacense,* the only species whose behaviour in the wild is known to any extent (Davison 1983a, 1983b). In this species, and apparently 3 others for which there is circumstantial evidence from the wild (Ogilvie-Grant 1897, Smythies 1953) or captivity (Stapel 1976), territory holding males clean the display sites to which females are attracted by their calls. The number of males so behaving varies widely from year to year.

If males with more spurs are more likely to win fights for territories and thus to breed, spur number would become an important factor in sexual selection. Such a case would be most unusual in that the weaponry used in intrasexual competition among males is distinct from the ornaments – in this genus iridescent eye-spots – of potential significance in non-combative assessment of phenotypic quality. Studies in this group thus hold interesting prospects for partitioning variance in reproductive success into components associated with male-male competition and with female choice.

Two initial assumptions are made here: first that the selective advantage of possessing more spurs does not arise through use of spur number as a visual cue to assess the rank or fighting ability of rivals. Visual assessment seems unlikely because spurs are in an inconspicuous position, are inconspicuously coloured, and no spur-revealing display is known; and second that males with many spurs will with the same effort inflict greater damage on their opponents than males with few spurs, though this does not imply that males with more spurs are necessarily stronger or have better fighting techniques.

Materials and Methods

Skins of males of all 6 species in the genus were examined, from the British Museum (Natural History) (105), the Zoological Reference Collection, National University of Singapore (18), Cambridge University Museum of Zoology (6) and the Department of Zoology, University of Malaya (3), as well as 20 live males in various zoological gardens. Further data were most kindly supplied by curators at the American Museum of Natural History (51), Rijksmuseum van Natuurlijkehistorie (27), Field Museum of Natural History (26), United States National Museum (12) and Merseyside County Museum (2). Spur number was counted on each skin or live bird, and expressed as the total number of spurs per male. Some captives were observed throughout adolescence and for up to 10 years of adulthood, to record any changes in spur number.

Wing-length was measured as the chord from carpal to tip of the longest primary, tail-length as distance from the point of insertion to tip of the longest rectrix. Wing-length was assumed to be directly related to body size. Relative tail-length was taken as tail-length divided by wing-length. For the 132 skins examined personally the length of each spur was taken as the chord from tip to basal scales. Three age categories were distinguished: juveniles, in which the dorsal plumage lacked any adult-like feather; adolescents, with from one to all except one dorsal feather adult-like; and adults, with no juvenile dorsal feathers remaining. Adolescent *P. bicalcaratum* and *P. malacense* were further subdivided into those with less than or with more than half the dorsum adult-like.

Males of most species bear iridescent ocelli on the wings and tail. Where present, the maximum (a) and minimum (b) radii of the largest such ocellus on the secondaries and on the rectrices were measured, and used to calculate their iridescent surface areas (A) using the formula $A=\pi ab$. The separate and combined surface areas of these 2 largest ocelli were used as indices of plumage extravagance. The technique is approximate, and can be faulted because the ocelli are not perfect ellipses, in some species having blurred edges, and they are hard to measure on damaged or distorted feathers. Ocelli were measured only on those skins examined personally.

Problems with the use of museum material, with possible bias towards easily collected birds, are discussed in a section on confounding factors.

Results

Results on spur number for each species and age class are summarized in Table 1. Several small juveniles lacked any trace of spurs. These were regarded as sufficiently young that spur growth had not yet begun; they are bracketed in the Table and were ignored in the calculation of mean spur number.

Spur number was not distributed normally, showing for *P. bicalcaratum* a slight negative skew ($a_3=-1.99$, $p<0.10$).

Spur number versus age

Mean spur number did not differ significantly between age classes for any species (Kolmogorov-Smirnov 2-tailed tests, $p<0.20$). The lack of significant correlation between spur number and age could have been due to the small sample size of young males, but data from captives indicate that spur number is fixed in the individual.

One adult male *P. malacense* possessed 4 spurs from the beginning of observations in December 1974 until at least November 1984. Two male

TABLE 1

Distribution of spur number among different age groups of *Polyplectron* species. Numbers of small juveniles are bracketed

		Number of spurs								
	Age (n)	0	1	2	3	4	5	6	7	Mean no.
P. chalcurum	Adult (39)	1	1	4	4	26	3	–	–	3.59
	Juvenile (9)	(1)	–	1	4	3	–	–	–	3.25
P. inopinatum	Adult (11)	–	–	2	3	5	1	–	–	3.45
	Juvenile (1)	(1)	–	–	–	–	–	–	–	–
P. germaini	Adult (12)	–	1	–	–	8	3	–	–	4.00
P. bicalcaratum	Adult (85)	2	2	4	6	58	10	2	1	3.87
	Adolescent (7)	–	–	1	1	5	–	–	–	3.57
	Juvenile (4)	(1)	–	–	–	3	–	–	–	4.00
P. malacense	Adult (27)	–	–	–	2	20	4	1	–	4.15
	Adolescent (12)	–	–	–	1	9	1	1	–	4.17
	Juvenile (9)	(1)	–	–	3	5	–	–	–	3.63
P. emphanum	Adult (42)	–	1	1	2	37	1	–	–	3.86
	Adolescent (6)	–	–	1	–	4	1	–	–	3.83
	Juvenile (6)	(2)	1	–	1	2	–	–	–	3.50
	TOTALS	3(6)	6	14	27	185	24	4	1	

P. emphanum were already spurred at adolescence at age 12 months and in neither case, one with 3 spurs and the other with 4, did spur number change by the age 5 years. Another male *P. emphanum* developed no spurs at adolescence and still had none by age 2 years. Though all spurs may not erupt quite simultaneously in the young bird, spur number evidently does not increase after adolescence.

Spur number versus species

The greatest observed range in spur number, 0-7 spurs, was in *P. bicalcaratum,* for which the sample size was largest. Species differences in mean spur number did not approach significance when compared within or even across age classes (Kolmogorov-Smirnov 2-tailed tests, $p > 0.20$). For each species the mode was 4 spurs, 2 per leg. The 2 small long-tailed species, *P. chalcurum* and *P. inopinatum,* for which there is no record of defended fixed display sites, did not differ from the remaining species in spur number.

Spur length versus age

Table 2 compares the mean lengths of spurs between age classes for 3 species with large sample sizes. Clearly spurs grew as males matured. For *P. malacense* and *P. emphanum* spurs averaged longest in late adolescence, although for each species the single longest spur was in an adult. A slight decline after reaching adulthood might be attributed to wear, whether or not spurs then cease to grow.

Although subject to severe constraints of sample size, Table 2 hints that the peak phase of spur growth in *P. malacense* may occur earlier relative to plumage changes than in *P. bicalcaratum.* In *P. bicalcaratum* the biggest jump in spur length occurred between late adolescence and adulthood, whereas in *malacense* it occurred between the juvenile and early adolescent samples. In *P. emphanum* spurs were substantially developed even in 2 juveniles examined.

One interesting incidental was the proportion in the sample measured of males not yet in adult plumage: 44% for *P. malacense* and 21% for

TABLE 2

Mean spur length according to age class in males of 3 *Polyplectron* species

	Juvenile	Early adolescent	Late adolescent	Adult
P. bicalcaratum				
Number of birds	3	1	1	27
Number of spurs	12	4	4	102
Mean spur length, mm	2.36	2.25	3.25	8.86
SD	1.53	1.03	2.51	1.48
P. malacense				
Number of birds	8	6	6	22
Number of spurs	29	26	24	90
Mean spur length, mm	3.69	8.72	11.58	10.28
SD	2.29	4.09	2.30	2.26
P. emphanum				
Number of birds	2	3		9
Number of spurs	7	12		35
Mean spur length, mm	7.07	11.19		10.53
SD	1.50	0.87		1.06

P. emphanum, yet only 11% for *P. bicalcaratum.* Whether this is important, and the possible role of biassed capture techniques, is discussed later.

Spur number versus size

For each species Spearman Rank correlations, r_s, were calculated for pairs of morphological criteria (Table 3).

In 5 out of 7 taxa, greater wing length was significantly correlated with greater tail length and higher spur number. High spur number was correlated with greater tail length in 4 taxa and with greater tail to wing ratio in 3. There were few significant correlations between ocellus areas and other measurements.

Amongst the 7 taxa in Table 3, the number of significant correlations was highly related to sample size (r_s=0.8571, p<0.01); 85% of correlations were significant for the 20 samples containing 30 birds or more, but only 20% were significant for the remaining smaller samples. Thus the correlations involving

TABLE 3

Spearman Rank values for various plumage and spur correlations among *Polyplectron* species. Significant correlations are marked * (p<0.05), ** (p<0.01) or *** (p<0.001), and sample sizes are given in parentheses.

	P. chalcurum	*P. inopinatum*	*P. b. bicalcaratum*	*P. b. bakeri*	*P. b. ghigii*	*P. malacense*	*P. emphanum*
Wing length v Tail length	0.671*** (35)	0.300 (11)	0.636*** (34)	0.505** (30)	0.236 (13)	0.527* (17)	0.540*** (39)
Wing length v Spur number	0.479** (35)	0.280 (12)	0.392* (34)	0.496** (30)	0.173 (13)	0.514* (18)	0.497*** (39)
Spur number v Tail length	0.405* (35)	0.239 (11)	0.576*** (34)	0.323* (30)	0.150 (13)	0.384 (17)	0.490** (39)
Spur number v Tail: wing ratio	0.412** (35)	0.293 (11)	0.548*** (34)	0.305 (30)	0.345 (13)	0.218 (17)	0.508*** (39)
Wing length v Tail: wing ratio	0.514** (35)	–	0.344* (34)	0.305 (30)	−0.124 (13)	−0.140 (17)	0.202 (38)
Wing length v Wing ocellus area	–	0.821** (8)	0.687** (17)	−0.047 (18)	0.013 (9)	0.366 (17)	–
Tail length v Tail ocellus area	–	−0.300 (5)	0.074 (17)	0.307 (18)	−0.317 (9)	0.485* (16)	−0.196 (7)
Wing length v Total ocellus area	–	–	0.429* (17)	0.106 (18)	−0.158 (9)	0.382 (16)	0.384 (7)
Spur number v Total ocellus area	–	–	−0.054 (17)	0.693*** (18)	0.475 (9)	0.337 (16)	0.313 (7)

TABLE 4

Means of morphological criteria for male *Polyplectron malacense,* ranked according to spur number. Wing and tail measurements in mm, ocellus areas in mm².

	n	Spur no.	Wing	Tail	$\frac{\text{Tail}}{\text{Wing}}$	Largest wing ocellus	Largest tail ocellus	Combined ocellus area
P. malacense	1	3	208	175	0.84	170	217	387
adolescents	8	4	203	200	0.98	143	372	515
	1	5	212	225	1.06	–	319	–
	1	6	215	240	1.12	112	418	530
P. malacense	1	3	210	209	1.00	159	377	536
adults	15	4	214	225	1.06	190	423	613
	4	5	223	229	1.03	193	437	630

ocellus areas, statistically real only in one taxon and all based on samples of fewer than 20 birds, deserve reinterpretation if additional measurements become available. At least for one other species, *P. malacense,* mean ocellus areas appear to rise with spur number (Table 4).

Scattergrams (Figs. 1 and 2) show that the correlation between size and spur number is based on a deficiency of large, few-spurred males. Many-spurred males (3-5 spurs) show a broad range in wing and tail lengths, but few-spurred males are always small.

Confounding factors

All wing, tail and ocellus measurements were taken from museum skins. Use of museum samples carries an obvious risk of bias towards easily caught

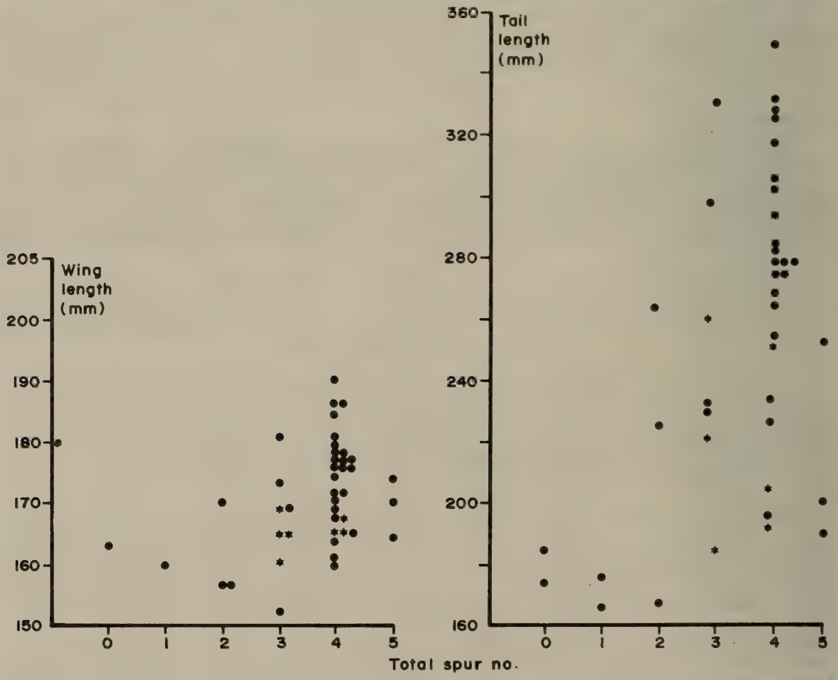

Figure 1. Scattergram of wing and tail length according to spur number in adults (spots) and juvenile (stars) of male *Polyplectron chalcurum.* Two 4-spurred adults with very long tails (387 mm, 401 mm) are not shown.

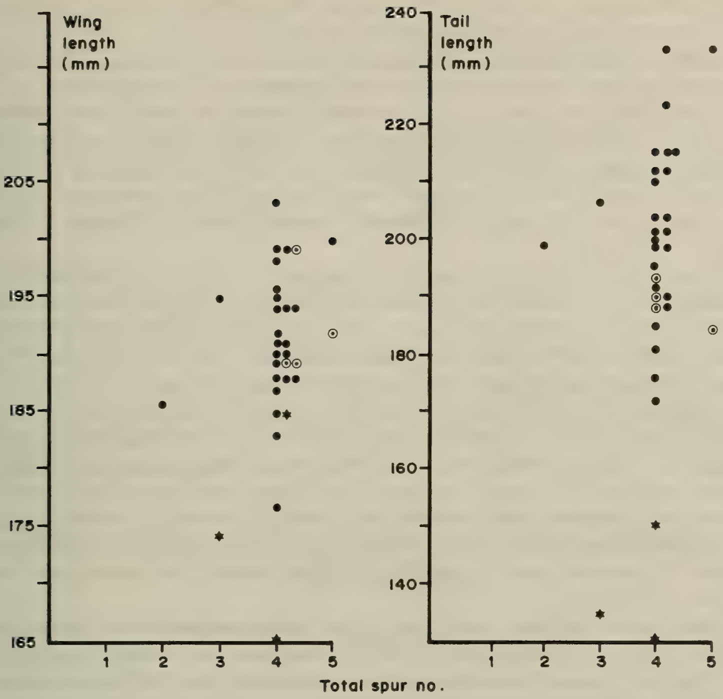

Figure 2. Scattergram of wing and tail length according to spur number in male *P. emphanum*. Filled circles represent adults, circles adolescents, and stars juveniles.

males; for instance, many-spurred noisy territorial males might attract a collector's attention. First, however, this would not explain the drop in total of 5- to 7-spurred males. Second, the distribution of spur number is similar in every species whether subadults, presumably non-territorial (Davison 1983a), are few or many. Third, most of the *P. chalcurum* skins examined are known to have been collected by ground snare (Robinson & Kloss 1918, 1924), a method presumably not biassed towards conspicuous birds. In short, the heavy representation of 4-spurred males in all species is likely to be a real phenomenon, while the correlations between spur number and size are not influenced by sampling technique.

Discussion

Beyond that point when spurs first erupt in the juvenile, spur number is not related to further age changes. It might be heritable or be influenced by nutrition of the chick prior to spur eruption. It might reflect absolute weight achieved by the time of adolescence, through food quality, nutrient balance, rate of calcium deposition as bone, and so on.

Of the above possibilities genetic determination of spur number seems likely because this has been demonstrated in related birds. In domestic fowl *Gallus domesticus* the possession of a second spur per leg is heritable (Washburn & Smyth 1971). Warren (1946) considered possession of supernumerary spurs in fowl to be recessive, and Hutt (1941) found that recessive homozygotes of the breed Sumatra Fowl had up to 5 spurs per leg.

Multiple spurs have also been reported in wild turkeys *Meleagris gallopavo,* their marked geographical restriction suggesting a mutation in a local population (Williams 1967). The presence or absence of spurs in female wild turkeys also follows geographical patterns consistent with local mutations (Williams & Austin 1969, Pattee & Beasom 1977). The presence or absence of spurs in female White Leghorn fowl is genetically determined (Goodale 1925) and is not influenced by dietary manipulation (Christmas & Harms 1982).

Spur number in *Polyplectron* is related to size. Size is presumably both heritable (Boag & Grant 1978, Moss & Watson 1982) and related to early nutrition, but in addition large males with few spurs might rapidly be beaten, and die. They could be compared with adopters of an unsuccessful "bluff" strategy (Rohwer & Rohwer 1978), whose large size and plumage features imply a dominance which they are unable to enforce because of their low spur number. Alternatively, increasing spur number might be related to increasing potential for body growth beyond adolescence, only males with high spur numbers having the capacity to grow big. There are theoretical grounds for expecting size increase over the first few breeding seasons in sexually selected species (Andersson 1982), and there is empirical evidence of this in the pheasant *Argusianus argus,* in which the oldest known bird was also the largest (Delacour 1977).

Polyplectron is the only multiple-spurred genus which is not monogamous (Davison 1985). If the number of spurs is genetically determined, as in related birds, then only some males could achieve high spur number even if spurs are individually cheap to produce. Yet the maintenance of variation within populations suggests there may be conflicting advantages to low versus high spur number. Variation in size and spur number, and in proportions of adolescent plumaged males, might open the way to alternative reproductive strategies. Field observations should make this clear.

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Relationships of the Pacific warbler *Cichlornis* and its allies

by S. Dillon Ripley

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Recently Hadden (1983) described a new species of thicket-warbler of the genus *Cichlornis* from Bougainville Island, North Solomons Province, Papua New Guinea. This new taxon, *C. llaneae,* was based on a single unsexed study skin, mist-netted in the forested hills above the site of the Panguna Copper Mine. Subsequent to this remarkable discovery, additional specimens of the new bird have been procured, and additional new information on its biology has been assembled, based on the results of a field trip to Bougainville Island sponsored by the Smithsonian Institution. Here I report these new findings, and comment on the relationship of this new taxon to other thicket-warblers and on their relationships to other Pacific warbler genera.

Bruce Beehler visited Bougainville Island 11-19 June 1980 in order to conduct a brief avifaunal survey of the montane forest where Hadden had discovered the thicket-warbler, and by mist-netting to obtain for the Smithsonian a series of montane forest birds endemic to Bougainville, especially additional representatives of the new thicket-warbler. Hadden gave generous assistance and in addition visited the collecting camp for 3 days while Beehler was there.

During this trip 2 specimens of the new *Cichlornis* were taken, sexed and prepared as study skins, one of the birds being trapped while brooding 2 eggs on a nest. These 2 specimens are of great value because they provide information on sexual dimorphism, adult plumage, weight, rectrix shape, tail length, and soft part coloration, hitherto unavailable for the Bougainville population. These data appear in Table 1 along with information from the holotype of *llaneae.*

TABLE 1

Compiled biometric data for the Bougainville Thicket Warbler

	HOLOTYPE	SPECIMEN #2	SPECIMEN #3
Collector	D. Hadden	B. Beehler	B. Beehler
Date taken	17.6.1979	15.6.1980	16.6.1980
Field No.	–	100	136
Museum #	AMNH 824713	USNM 584968	USNM 584969*
Sex	–	♀	♂
Gonad	–	ova tiny	testis 3 x 1 mm
Weight	–	27 g	24 g
Wing (chord)	70	70.8	71.5
Wing (arc)	72	72	74
Culmen (base)	21	19.5	19
Tarsus	23	24	25
Tail	damaged	44.5	51.5
Moult	tail in sheath	none	3 lead primaries
Iris	–	very dark brown	very dark brown
Leg colour	dark	dark vinaceous-brown	blackish brown, with vinaceous tinge
Brood patch	–	present	absent
How captured	mist net	netted by nest	netted near ground
Stomach contents	–	small hard-bodied insects	tiny black insects
Bill colour	dark	black	black

*Now lodged in the Papua New Guinea Museum, PNGM 18287.

The comparisons in Table 1 show that the small series is relatively uniform. As occurs in other forms of *Cichlornis,* the male shows a significantly longer tail, but otherwise sexual dimorphism is slight. In this Bougainville population the tail is medium-length, and the rectrices are complete and undegraded. The similarity of the new material to that of the holotype indicates that the original description is based on an adult specimen.

The female collected on 15 June was brooding 2 eggs (one with a nearly fully developed chick), exhibited a brood patch, and on dissection showed no enlarged ova. It is interesting to note that the same nest site was occupied by this species at the same period on successive years. Both specimens collected in 1980 had small pieces of hard-bodied insects in their stomachs. The stomach wall was noted to be strong and muscular.

As the original description included no information on the habitat of the Bougainville *Cichlornis,* here I include a brief summary based on Beehler's observations. The area where the 3 specimens were netted was an undulating but relatively flat expanse of wet montane forest atop a ridge of the Crown Prince Range. Forest canopy stood at about 15 m, although much light penetrated to the lower stories, permitting considerable growth of saplings, bamboo and ferns. Because of the continually high humidity in the forest, virtually all surfaces were coated with a thick growth of moss. Rain fell every day during the 1980 field trip, and blue sky was encountered only in the early morning and late afternoon. The area certainly receives in excess of 4000 mm of rain per annum (cf. McAlpine *et al.* 1973, Hadden 1981).

The thicket-warbler shared the forest with a rather impoverished montane bird community. The 110 birds netted included 17 species: 2 pigeons, 3 swiftlets, one cuckoo, 2 thrushes, an additional warbler, one robin *(Petroica),* one fantail, one whistler, one white-eye, 2 honeyeaters, and one estrildid finch.

Little was learned of the vocalizations of the *Cichlornis.* No free-flying birds were observed to call, but the female gave a scold while in the net, a shrill ''shreed – shreed.'' Elsewhere Beehler (1983) has commented on a well-known, but unidentified song delivered by some montane forest bird on Bougainville (cf. Diamond 1975). There is still the possibility that it may belong to *Cichlornis.*

Hadden commented briefly on relationships of the Bougainvillean population with other Pacific Island warblers. After examining specimens available at the American Museum of Natural History (New York) and the National Museum of Natural History (Washington, D.C.) I have drawn conclusions which differ markedly from those of Hadden. Noting the range of morphological variation exhibited by the 4 insular forms of *''Cichlornis'',* I do not beleive *llaneae* merits full species status. It is best to treat the entire ''genus'' as a single polytypic species, especially in view of the range of infraspecific variation among other widespread Melanesian forms (cf. Mayr 1931, Galbraith 1956, Ripley & Hadden 1982). In comparison with racial variation among the island forms of *Halcyon chloris, Turdus poliocephalus,* or *Pachycephala pectoralis,* the inter-island differences exhibited by *Cichlornis* are only slight – modest variation in tail and tarsal length and no known differences in habits or biology. Geographical distribution supports this treatment, with island representatives ranging from New Britain in the west *(grosvenori),* 2 intermediate forms *(llaneae* and *turipavae)* in the Solomons, and the easternmost representative on Espiritu Santo, New Hebrides *(whitneyi).*

Differences in plumage coloration between the island forms are slight, and all birds show a standard pattern. Perhaps the major difference shown by *llaneae* is that the tail feathers of the other island thicket warblers are described as strongly pointed and with a spiny shaft. At least in 2 cases *(whitneyi* and *grosvenori)* where the tail is well described, the unusual condition appears to be a product of feather age and degradation of the barbules and barbs. Both specimens were collected in December, presumably just prior to annual moult when feather wear is greatest. The 2 new specimens from Bougainville were taken in June and show relatively fresh plumage, with the tail feathers pointed, but not degraded, and non-spiny.

Generic relationships among the Pacific island warblers also require reassessment. The tendency of past describers of new island forms is to erect a new genus for each new taxon (cf. Sclater 1881, Reichenow 1890, Mayr 1933). Given the paucity of specimens or data on their biology, generic relationships have been ignored, and several superfluous generic epithets remain in regular usage today. As has been suggested by Orenstein (see Hadden 1983: 24), *Megalurulus* Verreaux, 1869, can be the name for an enlarged Pacific genus that includes *Cichlornis* Mayr, 1933, *Buettikoferella* Stresemann, 1928, and *Ortygocichla* Sclater, 1881. They are clearly linked by the head and facial patterning, pale scalloping on the outer secondary coverts (absent in *whitneyi),* bill construction and Pacific island distribution. All show very much reduced rictal bristles. With its soft tail, *llaneae* forms a link with the slightly divergent *rubiginosa.* In New Britain, the only island that supports 2 species of this expanded genus, one of the species *(grosvenori)* inhabits montane moss forest, while the other *(rubiginosa)* dwells in lowland rainforest.

Discrete from the expanded *Megalurulus* is *Trichocichla,* containing the single species *rufa,* from Viti Levu, Fiji. I would suggest that *rufa* may have affinities with *Bowdleria rufescens* of the Chatham Islands. Both show a predominantly white throat and underparts. These 2 perhaps should be united? They lack the scalloping on the secondary coverts, and both inhabit islands east of the main part of Melanesia.

In sum, I suggest that the Pacific Island warblers are revised as below:

Genus	**Species**	**Subspecies**
Megalurulus	bivittatus	
	rubiginosus	
	whitneyi	grosvenori
		llaneae
		turipavae
		whitneyi
	mariae	
Trichocichla	rufa	rufa
		clunei
Bowdleria	rufescens	
	punctata	

Perhaps the most important fact common to all of the taxa treated here is that too little is known about any of them. The Pacific island montane forest habitats are much under-studied, as became clear when as little as 12 days of mist-netting in the mountains of Bougainville produced 3 new breeding forest species for the island. Longer-term, systematic survey operations would be most useful in producing more data on these elusive sylviines, and would also permit a full biotic assessment of the wildlife resources of this rich group of island archipelagoes.

Acknowledgements: I am grateful to Bruce M. Beehler, Don Hadden, and the Wildlife Division, Office of Environment, Papua New Guinea, for making the Bougainville field trip possible.

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FORTHCOMING MEETINGS (continued)

Tuesday, 19 November 1985. Mr Jeffery Boswall will show films at 6 p.m. in the **Lecture Theatre in the British Museum (Natural History), Cromwell Road, S.W.7** on **"The Little Whimbrel** (*Numenius minutus*) **in north-eastern Siberia", "The Siberian Spruce Grouse** (*Dendragapus falcipennis*) **in the Soviet Far East"** and **"The Ibisbill** (*Ibidorhyncha struthersii*) **in Kazakhstan".** There will be a buffet supper at **Imperial College** at 7.15 p.m., after which he will speak on **"The Soviets and their Birds** – A rambling but reasonably accurate excursion into ornithology and bird watching, bird conservation and aviculture, falconry and birds as pests, all in the U.S.S.R.".

These Russian films, two of which have not before been shown in this country, of little-known Palaearctic birds have been brought by Mr Boswall from the Soviet Union and this is a special opportunity of seeing them as well as of hearing Mr Boswall, who will give a commentary on the films in addition to speaking after supper. Acceptances please with cheque for £5.20 to the Hon. Secretary (address inside front cover) by 5 November, if possible.

Tuesday, 21 January 1986 at the usual venue, Senior Common Room, Imperial College, **Dr Richard Chandler** will speak on **Bird Photography and Waders.**

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Edited by
Dr. J. F. MONK

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FORTHCOMING MEETINGS

Tuesday, 21 January 1986 at 6.20 p.m. for 7 p.m. in the Senior Common Room, South Side, Imperial College, Prince's Gardens, S.W.7, **Dr Richard Chandler** on **Bird Photography and Waders.** There will be a hot buffet supper and those wishing to attend should send their acceptance with a cheque for £5.30 a person to reach the Hon. Secretary at 2 Chestnut Lane, Sevenoaks, Kent TN13 3AR by first post on Tuesday, 7 January, if possible*.

Dr Chandler is well known as Photographic Consultant to ***British Birds.***

Tuesday, 4 March 1986 at 6.30 p.m. for 7.20 p.m. in the Senior Common Room, **SHERFIELD BUILDING,** Imperial College, S.W.7, **Mr A. J. Holcombe** on **An Introduction to Kenya Birds.** There will be a hot buffet supper and those wishing to attend should send their acceptance with a cheque for £5.30 a person to reach the Hon. Secretary (address above) by first post on 18 February, if possible*.

Mr Holcombe knows Kenya from many visits and his talk will be illustrated with colour slides of numerous species of birds.

THE SHERFIELD BUILDING IS IN THE MAIN BLOCK OF IMPERIAL COLLEGE, ON THE WEST OF EXHIBITION ROAD, ROUGHLY MIDWAY BETWEEN THE NATURAL HISTORY MUSEUM AND ALBERT HALL. THE SENIOR COMMON ROOM IS ON LEVEL 2.

Tuesday, 1 April 1986 at 6.20 p.m. for 7 p.m. in the Banqueting Suite at the Snooker Centre, 121 Holborn, E.C.1. **Professor J. W. Terborgh** of Princeton University will speak on **"The decline in North American migrant birds".** There will be a special hot buffet meal and those wishing to attend should send their acceptance with a cheque for £6.30 a person to reach the Hon. Secretary (address above) by first post on 18 March, if possible*. The Snooker Centre is on the NW side of Holborn Circus, about 200 yards from Chancery Lane tube station, and is highly regarded.

Professor Terborgh is an ornithologist of international repute for his ecological studies and an outstanding speaker. He very rarely travels to this country and we are fortunate that he is willing to speak to the Club on this occasion.

Tuesday, 20 May 1986, at the same venue as 1 April, **Annual General Meeting** at 6 p.m. and **Commander M. B. Casement** will later speak on **"Land bird migration as seen from ships at sea".**

***It will be possible to take acceptances up to the weekend before the Meeting but Members are asked to accept by 14 days before the Meeting, if they possibly can, to avoid the possibility of difficulties arising in the event of too substantial a number of late acceptances, as we have to notify approximate numbers a fortnight before a meeting.**

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Vol. 105 No. 4 Published: 20 December 1985

The seven hundred and sixtieth Meeting of the Club was held in the Senior Common Room, South Side, Imperial College, London S.W.7 on Tuesday, 24 September 1985 at 7 pm. The attendance was 29 Members and 18 guests.

Members present were: B. GRAY *(Chairman)*, Dr J. S. ASH, N. BAKER, P. J. BELMAN, K. F. BETTON, Mrs DIANA BRADLEY, D. R. CALDER, R. D. CHANCELLOR, Dr N. J. COLLAR, P. J. CONDER, R. F. COOMBER, A. K. DAVIES, J. H. ELGOOD, Sir HUGH ELLIOTT, G. D. FIELD, A. GIBBS, Dr J. J. D. GREENWOOD, S. HOWE, Revd G. K. McCULLOCH, Dr J. F. MONK, Mrs AMBERLEY MOORE, R. E. F. PEAL, R. E. SHARLAND, S. A. H. STATHAM, N. H. F. STONE, Dr S. N. STUART, A. TYE, Prof Dr K. H. VOOUS and M. W. WOODCOCK.

Guests present were: J. S. ARMITAGE, Dr CAROLINE ASH, Mrs J. W. ASH, J. BEESLEY, T. J. DEE, Mrs D. HOWE, Sir ANTHONY and Lady LAMBERT, Mrs I. McCULLOCH, Dr AMICIA MELLAND, Mrs D. C. MONK, P. J. MOORE, T. J. SIMMS, Dr and Mrs V. R. SOUTHGATE, Mrs H. TYE, Mrs VOOUS-LUITING and Mrs B. J. WOODCOCK.

After the Hon. Secretary had welcomed Dr Amicia Melland and spoken of the considerable assistance and co-operation which the club had received during her 15 years with the British Ornithologists' Union, the Chairman presented her with a cheque with the good wishes of the Club on her retirement as Administrative Secretary of the Union.

Dr N. J. Collar and Dr S. N. Stuart then spoke on Threatened Bird Species in Africa. Dr Stuart discussed forest birds and Dr Collar other threatened species. It was pointed out that most of the 177 species in their *Threatened Birds of Africa and Related Islands* (1985) were forest birds. Among the excellent slides shown were two first photographs ever of the Yellow-bellied Sunbird-asity *Neodrepanis hypoxantha.* The many points raised by the speakers brought out a wide discussion.

The seven hundred and sixty-first Meeting of the Club was held in the Senior Common Room, South Side, Imperial College, London S.W.7 on Tuesday, 15 October 1985 at 7 pm. The attendance was 18 Members and 11 guests.

Members present were: B. GRAY *(Chairman)*, Mrs DIANA BRADLEY, P. A. BROWN, D. R. CALDER, T. J. CHRISTMAS, A. K. DAVIES, J. H. ELGOOD, D. GRIFFIN, Dr C. N. HACKING, R. H. KETTLE, J. KING, Revd. G. K. McCULLOCH, Mrs AMBERLEY MOORE, R. E. F. PEAL, N. H. F. STONE, A. R. TANNER, K. V. THOMPSON and A. TYE.

Guests present were: Dr J. D. BRADLEY, Miss SUE BUTCHER, Mrs G. L. HACKING, Miss J. E. HACKING, N. JONES, Mrs ISABEL McCULLOCH, P. J. MOORE, A. J. RANDALL, M. R. RIDDELL, Dr M. E. RODDIE and Mrs HILARY TYE.

Mr A. J. Randall gave an address on The Birds of the Cape Verde Islands. He spoke particularly on information gathered by a party, of which he was a member, which had visited many of these little-known islands in February 1985. Among the many interesting slides shown were some of the Raso Lark *(Alauda razae)* and of a breeding site on Fogo of the Gon-gon *(Pterodroma feae).*

Nests of three Andean hummingbird species

by David A. Wiedenfeld

Received 9 April 1985

While in Peru from February to April 1982, F. P. Bennett, Jr., and I located 5 nests of 3 hummingbird species: the Shining Sunbeam *Aglaeactis cupripennis,* the Collared Inca *Coeligena torquata* and the Amethyst-throated Sunangel *Heliangelus amethysticollis. C. torquata* and *H. amethysticollis* are both widespread cloud forest species, whereas *A. cupripennis* inhabits drier slopes of the Andes. Although all 3 species are common birds in their habitats, because of the inaccessibility of those habitats almost nothing is known of their nests and eggs. I report here descriptions of the nests and the micro-habitats in which they are placed. The nests were encountered while conducting general ornithological research with an expedition from the Louisiana State University Museum of Zoology (LSUMZ).

Aglaeactis cupripennis

Two nests were found on 22 April 1982 in *Polylepis* (Rosaceae) woodland c. 13 km west of Milloc, Dpto. Lima, Peru (11° 21′S, 76° 43′W). This locality is on a steep slope of the upper Santa Eulalia valley (see Parker 1981). *Polylepis* spp. are the only trees in the area and are interspersed with shrubs and grassland.

Both nests were found in *Polylepis* trees, at 3925 m, in a narrow, steep-sided ravine. They were within 200 m of one another, and one was collected (LSUMZ-DW 1381). This nest was near the end of one of the lower branches of a tree growing from the side of the ravine. It was attached to and on top of a branch c. 3 cm in diameter, c. 5 m above the bottom and 3 m from the side of the ravine. The second nest (LSUMZ-DW 1383) was at a slightly lower elevation, 3900 m, c. 2.5 m above ground near the end of a branch of a *Polylepis* tree growing in the bottom of the ravine.

The nests were similarly constructed, both being roughly circular, measuring c. 2.5 x 3 cm inside the cup and 6.5 x 7 cm outside, the cups being c. 3 cm deep. They were formed of a fine greenish moss held together with spider webs, with small pieces of white lichen of the kind found growing on the *Polylepis* trees attached to the outside of the nests. Some green and a few dry, brown *Polylepis* leaves also were bound to the nests with spider web. The second nest (LSUMZ-DW 1383) had fewer brown *Polylepis* leaves attached to it, giving it more of an overall greenish appearance. The cups of both nests were lined with soft, white, wool-like fibre, apparently of plant origin; but the local people herd both llamas and sheep in the area, so it may have been from an animal source.

Two pure white eggs were in each nest, but only one of each clutch survived to measuring: 16.1 x 10.3 mm and 16.6 x 10.6 mm.

Coeligena torquata

Two nests of this species were located within a few hundred metres of one another at Cumbre de Ollon, c. 12 km east of Oxapampa, Dpto. Pasco, Peru (10° 34′S, 75° 19′W), at 2500 m. This is a cloud forest locality at the top of a ridge of the Yanachaga Range. The average canopy height is c. 15 m. Epiphytes are very common, and moss covers almost every branch of the trees (Schulenberg *et al.* 1984). Both nests were located alongside an unpaved and rarely frequented road used by local lumbermen. Both were c. 2 m above the level of the road and built around roots or stems hanging down from the road-cut bank, affording both nests much protection from rain.

The first nest (LSUMZ-DW 1233), collected on 22 March 1982, was sheltered by fern fronds that hung down and outward from the top of the road-cut. The nest itself was suspended by bare, dead stems of the same fern, which also hung down from the top of the road-cut.

The second nest (LSUMZ-DW 1277), located and collected on 29 March 1982, was suspended by small roots (0.5 cm in diameter) growing from the bottom side of an overhang of the road-cut.

Both nests were of similar construction, which consisted of a tightly-formed cup, surrounded by a loose, camouflaging sheath. The cups, more or less circular, measured c. 3 cm in inside diameter and 5.5-6 cm outside, with an inner depth of 3-3.5 cm. The cups were formed of soft, fine, brown fibres, probably of plant origin, possibly from tree-fern fiddleheads, since I have seen a female Booted Racket-Tail *Ocreatus underwoodi* collecting such material at the Santa Cruz locality (see next account). The cups were held together with spider web. Outside the cup, from the outer edge and hanging below it, the sheath was of fine, yellowish-green moss, with a few dried fern leaves in the lower parts.

Two fresh, pure white eggs were taken from each nest. Measurements of the one remaining egg from nest LSUMZ-DW 1233 are 16.3 x 10.3 mm, and of both eggs from nest LSUMZ-DW 1277 are 16.2 x 9.9 mm and 16.2 x 9.8 mm. Only female *Coeligena torquata* were seen at either nest, and both were incubating when the nests were collected.

Heliangelus amethysticollis

The nest of this species was found during its construction on 27 February 1982 and collected with one egg on 7 March 1982 (LSUMZ-DW 1155). Unfortunately, the nest had to be collected on the first day an egg was present, probably before laying was completed, since time was not available to wait for the full clutch.

The nest was located very near the top of the ridge, at 2450 m, on the west side of the Rio Santa Cruz valley, above our camp (Santa Cruz, c. 9 km SSE of Oxcapampa, Dpto. Pasco, Peru, 10°37′S, 75°20′W). The species was not seen much lower than this elevation during our stay at Santa Cruz, but was common at the higher altitudes of Cumbre de Ollon. The habitat and weather around the nest are very similar to those described for Cumbre de Ollon (Schulenberg *et al.* 1984).

The nest was built near the midpoint of a 1 m-long strand of moss hanging from a low tree, sheltered from rain by a clump of moss in the strand directly above the nest. The outer sheath of the nest was constructed of the same moss as the strand and the whole structure appeared merely as a slight irregularity in the hanging strand; it would not have been noticed had the female not been observed bringing material to it. The nest, c. 1.5 m above the ground and c. .75 m below the branch supporting the moss strand, was constructed in a manner similar to that of the *C. torquata* nests, with an inner cup and outer sheath. The cup was made of fibres similar to those in the *C. torquata* nests, but much lighter in colour, being a yellowish- to greenish-brown. The cup was slightly oval, c. 3 x 2.5 cm and c. 3.25 cm deep. The sheath of the nest was quite different from that of the *C. torquata* nests, being composed of browner moss, with more detritus included, to match the moss strand, but also had some of the same fine, yellowish-green moss. The sheath covered the entire outside of the cup, including the top, up to the inner rim of the cup. As a result, only the inside of the cup could be seen. The *C. torquata* nests, in contrast, had the sheath covering only the sides and bottom, so that the top and inside of the cup were both visible.

The egg was very fresh, probably laid on 6 March or early on 7 March 1982. It is pure white and measures 15.3 x 9.0 mm. Only the female was seen at the nest.

DISCUSSION

Dorst (1962), Horvath (1964), Smith (1969), Calder (1973, 1974), Carpenter (1976) and Snow (1980) have all noted that hummingbirds place their nests to take advantage of micro-climatic effects. Smith (1969) especially noted that *Oreotrochilus estella chimborazo* always seemed to place its nest in locations protected from rain by an overhang. The *Coeligena torquata* and *Heliangelus amethysticollis* nests reported in this paper also seem to seek the same protection. A more adequate sample size of the nests of these hummingbirds, however, is needed to test the hypothesis that their nests are placed to take advantage of shelter from the frequent rains in the cloud forest.

In contrast, the *Aglaeactis cupripennis* nests were in an area with much less precipitation than the other 3 nests. The nest studied by Calder (1974) was in a very similar situation to our *A. cupripennis* nests. Calder concluded that his nest was positioned to take advantage of the temperature amelioration effect of the canyon's rock walls, and that it was protected by the tree's foliage from the cold night sky. Dorst (1962), Smith (1969), Carpenter (1976) and Snow (1980) all reached similar conclusions about the nests they observed.

Because hummingbirds are small, temperature and precipitation can affect their energetics greatly. To alleviate some of these effects, the hummingbird nests reported in this paper appear to be located to take advantage of less rigorous micro-climates in their rigorous habitat.

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Extension of known range of the African Black Duck *Anas sparsa* in West Africa

by J. Frank Walsh

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On 26 October 1984, while flying about 400 feet above ground level in a helicopter, I noticed a medium sized blackish duck flying low along the Djilemba River (8°35.5′N, 8°15′W) in the Beyla district of eastern Guinea (Conakry). I considered that it was probably an African Black Duck *Anas sparsa,* but the view was brief and in poor light. On 17 November 1984 a medium sized blackish duck was again seen from a helicopter in the same general area, but this time on the Gbé River, draining the Massif de Soseri (8°41′N, 8°12′W). On this occasion the bird was seen in good light from a height of about 200 feet, as it flew upstream for a distance of about 100 metres, before disappearing under overhanging trees. It was noted as a dark brown or dull black duck of the *Anas* type, about the same size as a Wigeon *Anas penelope.* A white wing bar above the speculum, presumably formed by white tips to the upper greater wing coverts, was clearly visible. A landing was made but the duck could not be flushed. However, while I was later collecting aquatic invertebrates from the stream bed it flew overhead downstream into the sun. The brief view offered was enough to confirm the impression of size already gained and to confirm that the face, neck and body beneath were concolourous with the upper parts. Thus there can be no doubt that this second observation was that of *Anas sparsa,* a species which I had previously seen in Kenya.

Anas sparsa has previously been recorded in the extreme east of Nigeria, in streams on the Mambilla Plateau at a location known as Yelwa (Hall 1977). Both Snow (1978: 54) and Brown *et al.* (1982: 262) have incorrectly mapped this as the well known large town of Yelwa which is situated on the bank of the River Niger in northwestern Nigeria. The present observations represent an extension of known range of about 2000 km to the west of the Mambilla area.

Both sightings in Guinea were of ducks flying along clear, rocky, well-wooded streams in mountainous country, though at no great altitude. The streams were very similar to those occupied by *A. sparsa* in Kenya, a habitat type usually avoided by other species of duck in Africa. In the region between the Mambilla Plateau and Guinea Republic such streams are restricted to a very small area on the Togo-Ghana border. There is an extensive montane area in Guinea but although about 30 other streams were surveyed by helicopter no other duck were sighted.

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The rediscovery and taxonomic relationships of *Gerygone igata amalia* Meise, 1931*

by S. A. Parker, W. E. Boles & N. W. Longmore

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In his revision of the genus *Gerygone* Gould, 1841 (Acanthizidae), Meise (1931) placed together as subspecies of *G. igata* the following 6 forms: *igata* (Quoy & Gaimard, 1830), the Grey Warbler of New Zealand; *modesta* Pelzeln, 1860 of Norfolk Island; *insularis* Ramsay, 1878, the Rainbird of Lord Howe Island; *richmondi* (Mathews, 1915), the Brown Warbler of southeastern Australia; *amalia* subsp. nov. of the Bowen district, mid-eastern Queensland; and *mouki* Mathews, 1912, the Northern Warbler of northeastern Queensland.

Since Meise's revision little taxonomic work has been undertaken in this group. Mack (1953) further extended the concept of *G. igata* to include the Western Warbler *G. fusca* and the Buff-breasted Warbler *G. levigaster.* Keast (1961: 360–361) regarded *mouki, amalia* and *richmondi* as constituting a distinct group, which he referred to as a species but designated *G. (igata) richmondi.* Storr (1973: 99) listed these 3 forms under *G. mouki,* remarking: "From north to south, these birds become darker above and below; whether there are sufficient steps in these clines for recognizing "*amalia*", the Wide Bay population (briefly described by North 1903), and "*richmondi*", is doubtful. Also uncertain is their relationship to *G. igata* of New Zealand." Hall *(in* Hall 1974: 170) treated *mouki* as a species consisting of *mouki, amalia* and *richmondi,* hesitating to follow Meise in regarding this group as conspecific with *igata* of New Zealand "until direct comparisons have been made with them in the field". Most recently, Storr (1984: 124) modified his earlier arrangement by recognizing *richmondi* subspecifically within *G. mouki,* though tentatively including *amalia* in *richmondi.*

Mack's decision to lump *G. fusca* and *G. levigaster* with *G. igata* has generally been ignored, correctly in our opinion (see Keast 1961, Ford 1981). Of Mack's analysis it remains only to point out that of the 2 specimens he listed under *G. igata mastersi,* that from Brown's Creek (QM 0.5231) is referable to the Large-billed Warbler *G. magnirostris,* and that from Mount Finnegan (QM 0.5232) to the form *mouki.*

However, we regard even Meise's (1931) concept of *G. igata* as too broad, and believe that some of the forms he included may on further investigation be seen to merit specific status, or even a transfer to other species. We base this opinion on the following 3 points. First, the rising and falling song of nominate *igata* (as recorded on a tape provided by Dr J. Kendrick) differs strongly from the song of *mouki* heard by S.A.P. in 1964, which consisted of a short sharply-rising phrase of 5-6 notes, rapidly repeated (Parker *in* Hall 1974: 170; see also Diamond 1972: 226). Secondly, Hull (1910), in commenting on the song of the now extinct *insularis,* compared it not to that of *modesta* (which he knew), but to that of the White-throated Warbler *G. olivacea.* Thirdly, *insularis* appears most similar in its coloration not to any other form in Meise's *igata*-group but to *G. flavolateralis* of New Caledonia, the New Hebrides and Rennell Island, differing mainly in its larger size. Obviously there is scope for further work in this group, particularly on the songs. In the meantime, we provisionally regard the forms *igata, modesta* and *insularis* as not conspecific with the Australian group *richmondi, amalia* and *mouki.*

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*'Occasional Papers of the Ramsay Club' No. 1 (named in honour of Australian collector and taxonomist Dr Edward Pierson Ramsay 1842–1916).

As noted above, taxonomic treatments of the Australian forms have varied, but all have been hindered by the lack of comparative material of *amalia,* the 2 original specimens of which were destroyed in 1945 (S. Eck – 23 Sep 1983; W. Meise – 6 Oct 1984). With the rediscovery, however, of *amalia* in 1975 and further sampling in 1978 and 1980, this situation has now improved.

The rediscovery of *amalia* was made by Mr D. P. Vernon during a faunal survey of the eastern Australian rainforests conducted jointly by the Queensland Museum (QM) and the Australian Museum (AM). Mr Vernon collected 2 specimens (QM 0.15961-2) near Crediton (21°13′S, 148°34′E) in the Clarke Range, Queensland, on 16 and 17 April 1975, an unsexed bird and a female netted along the rainforest's edge, where they were foraging in *Lantana camara.* Individuals were observed at other sites nearby. During a second visit in 1978, W.E.B., N.W.L. and G. J. Ingram secured 4 more specimens along Massey Creek (21°03′S, 148°07′E), in nets by the water's edge and at a road-cutting: 3 males on 2 December (QM 0.17538, 0.17546, 0.17553) and one male on 3 December (AM 0.56752, formerly QM 0.17555). In 1980 a further 3 specimens were collected by W.E.B. and N.W.L. several hundred metres from Massey Creek: 2 males, 2 May (AM 0.53767) and 5 May (AM 0.53768) and a female, 9 May (AM 0.53766); all 3 were foraging in the upper foliage of regrowth adjacent to a road-cutting.

Meise (1931: 353) based *amalia* on 2 specimens labelled 'Bowen', collected by Amalie Dietrich (possibly in 1869–1870, *vide* Whittell 1954: 201): the holotype in the State Museum of Zoology, Dresden (C27188) and a paratype in the Hamburg Museum. He diagnosed *amalia* as: ". . . like *G. i. richmondi*

TABLE 1

Measurements (mm) of *Gerygone mouki, G. richmondi amalia* and *G. r. richmondi* (number of specimens in brackets). Bill-length is from angle with skull, bill-width and bill-depth are at hind-edge of nostrils. The figures for *G. r. richmondi* include those for the skins from Wide Bay and the Bunya Mts (both males), but not those for the Gympie skin, which is unsexed, and whose respective dimensions are 48.5, 43.8, 11.5, 3.6, 2.5 mm.

	Wing	Tail	Bill-length	Bill-width	Bill-depth
mouki					
♂♂	48.5–51.9(7)	41.3–46.3(7)	11.4–13.4(7)	2.7–3.4(7)	2.3–3.0(6)
♀♀	47.5, 51.0(2)	41.4, 44.4(2)	12.2, 12.4(2)	3.3, 3.4(2)	2.4, 2.7(2)
amalia					
♂♂	49.4–52.5(5)	44.4–47.8(5)	11.2–12.6(5)	3.2–3.5(5)	2.5–2.8(5)
♀♀	47.4, 49.9(2)	42.6, 44.1(2)	12.1, 12.5(2)	3.3, 3.3(2)	2.4, 2.7(2)
richmondi					
♂♂	47.2–50.6(11)	41.8–47.2(12)	10.9–12.1(13)	2.7–3.6(13)	2.3–2.6(12)
♀♀	48.0, 50.1(2)	41.5, 42.7(2)	11.6, 12.1(2)	2.8, 3.0(2)	2.3, 2.5(2)

Mathews but upperparts less rusty, greyer, chin and cheeks greyish instead of whitish; rust-brown tinge on breast, flanks, belly and undertail-coverts entirely receding, replaced by a brownish yellow, on the breast by a more greyish olive tinge [ganz zurücktretend, durch einen bräunlichgelben, an der Brust mehr grau olivenfarbenen Anflug, ersetzt]. Differs from *mouki* Mathews by its browner back, greyer cheeks and more vivid tinge on flanks'' (translated by Miss A. Gackle and Dr W. Meise). The new material from the Clarke Range conforms well to this diagnosis, and we have no hesitation in ascribing it to *amalia.* On the basis of the fresh material, *amalia* does indeed appear to be distinct. Its dorsum is intermediate in colour between the olive-grey dorsum of *mouki* and the olive-brown one of *richmondi,* and it has the contrasting ashy-grey face, hindbrow and sides of neck of *richmondi* (areas concolorous with the dorsum in *mouki).* It differs further from *richmondi* in having the throat and upper breast whiter, less grey. *mouki* differs from *amalia* and *richmondi* not only in lacking the ashy-grey on the head and neck, but also in having the buff tinge of the ventral surface more or less concentrated in a faint breastband rather than generally suffused over the breast and flanks. All 3 forms are similar in measurements (Table 1).

The form *mouki* occurs in northeastern Queensland, mainly above 250 m, north to Mount Amos and south to Paluma in the Mount Spec district (QM 0.10403, Paluma, examined). *amalia* is known with certainty only from above 920 m in the Clarke Range, which is 175 km south of the Mount Spec district across the relatively dry Burdekin Gap (possibly the 2 original specimens labelled 'Bowen' were really from the Clarke Range, which is 60–70 km inland from Bowen; and see Storr's 1984: 124 opinion that some of Dietrich's specimens are not accurately labelled). Whether there is a similar disjunction between the ranges of *amalia* and *richmondi* remains to be determined. Meise (1931) reported *richmondi* north to the Richmond River, northeastern New South Wales. In fact, *richmondi* extends further north to at least Wide Bay, skins from Brisbane (QM 0.12413, 0.12414, 0.12416), Esk (QM 0.10770), Bunya Mountains (QM 0.5483), Gympie (QM 0.3022) and Wide Bay (AM 0.23355) all falling within the range of variation of *richmondi.* In addition, the 1975 survey recorded, but did not collect, *'richmondi'* from 2 study sites at Bulburin (540–580 m), 225 km northwest of Wide Bay.

The lower altitudinal limit of *amalia* in the Clarke Range is not known. The survey of 1975 found it above 920 m but undertook no fieldwork between 920 m and 180 m. It was not seen at Finch Hatton (180 m) at the base of the Clarke Range, or at 2 sites near Proserpine (Mount Dryander and Brandy Ck, c. 120 m). Storr (in litt.) gave among the manuscript sources of his *List of Queensland Birds* (1973) a sighting of the 'Brown Warbler' from Mount Dryander made by Mr R. L. Pink in 1964 whilst on the second Harold Hall Expedition. However, S.A.P., who was on this expedition, recalls no report of this species at that camp, although the party was particularly looking for it. Possibly 'Brown Warbler' was a slip of the pen for 'Brown Thornbill', which the party did record there (Hall *in* Hall 1974: 179, Boles 1983).

If, from among the morphological characters discussed above, we take the presence or absence of the contrasting ashy-grey of face, hindbrow and sides of neck as having the greatest taxonomic significance, then the fundamental division among the 3 Australian forms is between *mouki* on the one hand and *amalia* and *richmondi* on the other. Because *amalia* is geographically closer to *mouki* (c. 175 km) than to *richmondi* (c. 800 km, or c. 625 km if the Bulburin population proves referable to *richmondi)* yet still shows the facial and ventral characters of *richmondi,* we are inclined to regard *mouki* as a separate species, *G. mouki,* the Northern Warbler, and *amalia* and *richmondi* as conspecific in *G. richmondi,* the Brown Warbler. The reuniting of *G. mouki* and *G. richmondi* as one species may be warranted, but ought not to precede further studies, including comparisons of song, nidification and other behaviour. It is of interest that 2 presumed allospecies, the Mountain Thornbill *Acanthiza katherina* (highlands of northeastern Queensland) and the Brown Thornbill *A. pusilla* (southeastern Australia north to Rockhampton, with a distinctive isolate in the Clarke Range – Boles 1983), show the pattern of distribution described above for *G. mouki* and *G. richmondi.* By analogy with the distribution of *A. p. pusilla,* the unsampled Bulburin population might be expected to be referable to *G. r. richmondi.*

The original type-material of *amalia* having been destroyed, it might seem appropriate to designate a neotype. However, the circumstances do not appear to meet the exceptional requirements of this step as laid down in the International Code of Zoological Nomenclature Article 75.

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On records of pink-legged Herring Gulls *Larus argentatus* subsp. in Central Europe and the Balkans

by J. Van Impe

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On 9 August 1984, an adult Herring Gull *Larus argentatus* with pink-coloured legs was seen at a fishpond, known as ''Academic fishpond'', in the puszta Hortobagyi, c. 6 km west of the village of Hortobagy (47°32′N, 21°24′E), Hungary. This bird, resting on one of numerous pieces of fishing-paraphernalia, was observed down to 150 m with a 60 x 60 telescope, though in overcast conditions. Because several Black-headed Gulls *Larus ridibundus* and yellow-legged Herring Gulls *L.a. michahellis* (presumably) were also resting in the immediate vicinity of the pink-legged Herring Gull, a fairly accurate comparison between the 2 Herring Gull forms was possible.

In size and general appearance, the pink-legged Herring Gull in comparison with the surrounding yellow-legged Herring Gulls was slightly smaller, with slender body, somewhat shorter legs and a thinner-looking bill shape. The folded wing extended c. 3 cm past the tail, an obviously shorter distance than in the yellow-legged Herring Gulls. In colour, the pale grey mantle and upperwing were lighter, the crown, nape, forehead and hindneck moderately speckled grey, orbital ring yellow brown, legs and feet flesh pink, the bill having the same colour pattern as the yellow-legged Herring Gulls. The latter had a larger amount of black in the primaries. The presence of a yellow orbital ring, shaded brown, probably indicates that the observed bird had not yet developed full adult plumage, which raises some uncertainty about the subspecific identification, though since the other field-characters of this bird were repeatedly recognised in good viewing conditions, a tentative identification was possible.

So far, only yellow-legged specimens of the Herring Gull have been known in Hungary, mainly those of the subspecies *michahellis* and *cachinnans (=ponticus),* but also of *omissus* and *heuglini* (Keve & Pátkai 1952-1955, Keve 1960, 1971-1972). Among all these races, *michahellis* is likely to be the most common (Glutz von Blotzheim & Bauer 1982). There are already several published records of pink-legged Herring Gulls in Central Europe and the Balkan area. Matvejev & Vasić (1973) recorded them in Yugoslavia, and Raines (1962) observed one in Greece. Although absent from the Rumanian lists (Vasiliu 1968, Cátuneanu *et al.* 1972), one bird was recorded on the Black Sea coast of Rumania in August 1974 (Van Impe 1977).

Discussion

One cannot always make positive subspecific identifications of Herring Gulls in the field, especially in countries where only a few skins are available from collections to permit later comparison. Several subspecies of Herring Gulls with pink legs may be present in Central European countries. Apart from the nominate *argentatus* group, individuals belonging to the *cachinnans* group should be considered, though not mentioned by Cramp & Simmons (1983). According to Dr P. Devillers (see also Glutz von Blotzheim & Bauer 1982), individuals of the race *omissus* of Baltic origin with flesh-pink legs also occur.

Kumari (1978) noticed 3 with this leg colour among 28 adult breeding birds collected in the Estonian SSR between 1947 and 1957.

European Herring Gull popuations of tidal coasts at low latitudes are very sedentary (Spaans 1971, Parsons & Duncan 1978). The same is true for the Herring Gulls from the southern part of the Baltic (Goethe 1956, Jørgensen 1973). One could conclude from this that the presence of the race *argenteus* or of an intergrading population *argentatus/argenteus* seems rather improbable far inland in Europe. The studies of Kilpi & Saurola (1983a, 1984) on the migration route of Finnish *L.a. argentatus* suggest that their appearance in Central Europe is also unlikely. However, populations breeding at higher latitudes cover larger distances; birds from Arctic Norway and the Murman coast, for instance, visit the North Sea area in Winter (Stanley *et al.* 1981, Kilpi & Saurola 1983b, see also Glutz von Blotzheim & Bauer 1982). Nor is it excluded that some of these birds, during their autumn migration, may get caught up with the Lesser Black-headed Gulls *L.f. fuscus* which head Southeast to the Dobrogean coast and the Hungarian plains, where during the first half of August *L.f. fuscus* is a fairly regular visitor, their flocks possibly being accompanied by *L.a. argentatus* in small numbers. It must also be borne in mind that there has been an increase of the breeding population of *L.a. argentatus* along the Baltic coast of the German Democratic Republic and of Poland (Nehls *in* Klafs & Stübs 1977, Bednorz *et al. in* Glutz von Blotzheim & Bauer 1982).

However, the description of my Hungarian bird seems hardly applicable to the nominate *argentatus* group, birds of which assume a streaked head usually in September (Cramp & Simmons 1983), a month later than my observation; nor is streaking of the head and the hindneck extensive in the *cachinnans* group. Devillers (*in* Cramp & Simmons 1983), however, mentions that in adult non-breeding plumage, the subspecies *omissus* particularly develops speckles and streaks on the head.

Although it is possible that Herring Gulls of the nominate *argentatus* group visit Central European countries as stated above, the presence of aberrant pink-legged *omissus* must also be considered, and in the case reported here, this identification seems the most likely.

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Range extensions for some Bolivian birds, 1 (Tinamiformes to Charadriiformes)

by J. V. Remsen, Jr., Melvin A. Traylor, Jr. and Kenneth C. Parkes

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Except for additions to the Bolivian avifauna as a whole, very little has been published concerning changes in our knowledge of distribution within Bolivia. This paper summarizes numerous previously unpublished range extensions on a departmental basis. Such additions to the avifaunas of various "Departamentos" are of zoogeographic significance because even the smallest department in Bolivia (Tarija) is larger than Belgium, Denmark, Netherlands or Switzerland; the largest (Santa Cruz) is larger than any European country except Spain or France and is more than 50% larger than the United Kingdom. Furthermore, Bolivia contains the area of transition between habitats typical of lowland Amazonia and those of southern South America, and so precise delimitation of bird ranges in the country is of special interest.

Records published herein, all of which are new for their respective Departamentos, are based primarily on specimens housed at the Museum of Zoology, Louisiana State University (LSUMZ), Field Museum of Natural History (FMNH), Carnegie Museum of Natural History (CM), or the Los Angeles County Museum (LACM). A few supplementary sight records are also included. Departamentos are also abbreviated throughout: Chuquisaca (CH), Cochabamba (CO), La Paz (LP), Oruro (OR), Santa Cruz (SC) and Tarija (TA).

All specimens collected in SC, CO, and LP were collected by F. or R. or J. Steinbach unless stated otherwise; this is the first systematic distributional survey of the extensive Steinbach collections at CM (9000 specimens), FMNH (7500), and LSUMZ (3000). All specimens collected in CH and TA were collected by Kenneth E. Stager or S. C. Bromley unless stated otherwise. Elevations and provinces are not mentioned in the text for localities listed in the gazetteer of Paynter *et al.* (1975) (q.v.) or for the following frequently mentioned locality: Chipiriri 300 m, Prov. Chapare (CO).

We here report the first specimens for Bolivia for 2 species, *Netta peposaca* and *Sarkidiornis melanotos.*

SPECIES LIST

RED-WINGED TINAMOU *Rhynchotus rufescens*

TA: 67 km E Tarija, 2500 m, 19 February 1973, collected by R. Crossin (FMNH-C 25386).

ANDEAN TINAMOU *Nothoprocta pentlandii*

TA: 80 km S Tarija, 2000 m, 14-15 January 1973, collected by R. Crossin (FMNH-C 25387-89).

LEAST GREBE *Tachybaptus dominicus*

CO: Alto Palmar, 2 and 13 May 1960 (LSUMZ 35582, 36949). SC: Santiago de Chiquitos, 9 March 1973 (FMNH 295222); Laguna Caucaya, 10 km by road E Gutierrez, 875 m, Prov. Cordillera, 17 April 1984, collected by C. G. Schmitt (LSUMZ 123414-15). CH: 30 km SE Carandayti (=Carandaiti), 10 July 1957 (LACM 35345).

ANHINGA *Anhinga anhinga*

SC: Buena Vista, 25 December 1944 (LSUMZ 35597); Rio Surutú, 21 November 1946 (LSUMZ 36962); 1 seen near Santa Rosa, Prov. Velasco, 17 June 1984 (JVR, C. G. and D. C. Schmitt); 1-2 seen by JVR and C. G. Schmitt at 24 km by road N Santiago de Chiquitos, along Rió Tucavaca, 175 m, Prov. Chiquitos, 26-29 July 1984.

CAPPED HERON *Pilherodius pileatus*

CO: Chipiriri, 3 November 1962 (LSUMZ 35604).

GREAT EGRET *Ardea alba*

CH: 30 km SE Carandayti, 3 October 1957 (LACM 35405).

GREEN-BACKED HERON *Butorides striatus*

LP: Ixiamas, 221 m, Prov. Caupolican, 16 April 1961 (LSUMZ 36968). CO: Cochabamba, 29 December 1962 (LSUMZ 36967). CH: 30 km SE Carandayti, 8 November 1957 (LACM 35340).

CHESTNUT-BELLIED HERON *Agamia agami*

CO: Chipiriri, 8 November 1962 (LSUMZ 36973).

BOAT-BILLED HERON *Cochlearius cochlearius*

CO: Chipiriri, 7 November 1962 (LSUMZ 35617, 36986).

FASCIATED TIGER-HERON *Tigrisoma fasciatum*

SC: Angostura, 800 m, Prov. Florida, 15 June 1955 (LSUMZ 35609).

MAGUARI STORK *Ciconia maguari*

CO: Cochabamba (an extremely unusual locality for this lowland species), 9 November 1960 (LSUMZ 36990).

JABIRU *Jabiru mycteria*

SC: Buena Vista, 4 December 1922 (CM 94654). JVR and C. G. and D. C. Schmitt saw two at 2 km W San Ramon, Prov. Ñuflo de Chavez, SC, on 9 June 1984.

CHILEAN FLAMINGO *Phoenicopterus chilensis*

CO: Cochabamba, 20 April 1964 (LSUMZ 35618, 37000).

BLACK-BELLIED WHISTLING-DUCK *Dendrocygna autumnalis*

CH: 6 km SE Carandayti, 10 November 1957 (LACM 35363-4). TA: 2 km W Capirenda, 20 November 1957 (LACM 35361); C. G. Schmitt and D. C. Cole saw 5-20 at Laguna Palmar, 2 km S, 10 km E Tiguipa, Prov. Gran Chaco, 555 m, 13-24 May 1979.

MUSCOVY DUCK *Cairina moschata*

CO: Chipiriri, 2 November 1962 (LSUMZ 37016). CH: 30 km SE Carandayti, 30 July 1957 (LACM 35402).

RINGED TEAL *Callonetta leucophrys*

CH: 30 km SE Carandayti, 10 July and 7 October 1957 (LACM 35351-57).

TORRENT DUCK *Merganetta armata*

CH: 34 km SE Padilla, 2400 m, 15 November 1972, collected by R. Crossin (FMNH-C 25384).

WHITE-CHEEKED PINTAIL *Anas bahamensis*

CH: 30 km SE Carandayti, 10 July 1957 (LACM 35358). TA: 7 km NW Capirenda, 24 November 1957 (LACM 35359).

CINNAMON TEAL *Anas cyanoptera*

CO: Cochabamba, 4 specimens, February, September and November 1953 (LSUMZ 35625-26, 37010-11).

ROSY-BILLED POCHARD *Netta peposaca*

SC: Buena Vista, 25 March 1916 and 2 January 1917 (CM 78853, 79099). These are the first records of this species for Bolivia; it had been recorded previously only as far north as Paraguay and southern Brazil (Meyer de Schauensee 1966).

MASKED DUCK *Oxyura dominica*

TA: 6 km SE Carandayti, 10 November 1957 (LACM 35360).

COMB DUCK *Sarkidiornis melanotos*

The only previously published records for this species from Bolivia are the sight records of Dott (1984) and Parker & Rowlett (1984). Two specimens have been collected: SC: Lagunillas, 15 February 1916, and Buena Vista, 20 November 1924 (CM 78865, 119890).

SOUTHERN SCREAMER *Chauna torquata*

CH: 30 km SE Carandayti, 17 and 19 July 1957 (LACM 35403, 88862).

TURKEY VULTURE *Cathartes aura*

CO: Choro, 3500 m, Prov. Ayopaya, 22 June 1953 (LSUMZ 35641); C. G. and D. C. Schmitt saw singles regularly at Quebrada Majon, 6.6 km by road NW Lopez Mendoza, at Km 98 from Cochabamba, 3150 m, Prov. Carrasco, 6-13 May 1984.

GREY-HEADED KITE *Leptodon cayanensis*

CO: Chipiriri, 15 October 1964 (LSUMZ 37043). SC: Rio Surutú, 27 November 1943 (LSUMZ 35643).

SWALLOW-TAILED KITE *Elanoides forficatus*

CO: Huanoi, Prov. Chapare, 2000 m, 23 September 1950 (LSUMZ 37047).

SNAIL KITE *Rostrhamus sociabilis*

SC: Buena Vista, 21 July 1910 (CM 38311, 43743), 2 January 1917 (CM 79097), 10 March 1929 (CM 120528) and 15 November 1943 (LSUMZ 35647); Curiche Nueva Moka, 4 February 1922 (CM 94521). CH: 30 km SE Carandayti, 17 and 19 July (LACM 35370, 88898). TA: 15 km SE Capirenda, 20 August 1957 (LACM 35374).

SHARP-SHINNED HAWK *Accipiter striatus*

CH: 30 km SE Carandayti, 10 July 1957 (LACM 35379).

BICOLORED HAWK *Accipiter bicolor*

CH: 30 km SE Carandayti, 5 specimens, July, October, November 1957 (LACM 35381-84, 37092).

CRANE HAWK *Geranospiza caerulescens*

CH: 30 km SE Carandayti, 4 August 1957, and 30 km SE Carandayti, 11 August 1957 (LACM 35396, 88902).

WHITE HAWK *Leucopternis albicollis*

LP: Seen by JVR Bellavista, c. 1100 m, Prov. Nor Yungas, 9 July 1981.

GREAT BLACK-HAWK *Buteogallus urubitinga*

CO: Chipiriri, 13 October 1964 (LSUMZ 37083). CH: 30 km SE Carandayti, 17 and 30 July 1957 (LACM 35397, 35399-400).

SAVANNA HAWK *Buteogallus meridionalis*

CH: 25 km SE Carandayti, 1 September 1957 (LACM 35393) and 3 km SE Carandayti, 3 August 1957 (LACM 35392).

HARRIS' HAWK *Parabuteo unicinctus*

CH: 30 km SE Carandayti, 17 July 1957 (LACM 35395).

BLACK-CHESTED BUZZARD-EAGLE *Geranoaetus melanoleucus*

LP: Seen by JVR Huajchilla, 18 km by road S Calacoto, 3125 m, Prov. Murillo, 21 May 1980. Seen regularly in the dry hills and valleys south of La Paz (Tom and Jo Heindel).

SWAINSON'S HAWK *Buteo swainsoni*

TA: 2 km W Capirenda, 20 November 1957 (LACM 35881).

WHITE-TAILED HAWK *Buteo albicaudatus*

TA: 12 km SW Capirenda, 6 September 1957 (LACM 35390).

BLACK CARACARA *Daptrius ater*

CO: Todos Santos, 12 March 1956 (LSUMZ 37099). SC: Bajo Río Grande, 350 m, Prov. Ichilo, 25 October 1942 (LSUMZ 37100).

RED-THROATED CARACARA *Daptrius americanus*

SC: Buena Vista, 8 December 1910 (CM 44006-07) and 15 April 1929 (CM 120532); Mataracú, 400 m, Prov. Ichilo, 27 June and 5 September 1943 (LSUMZ 35670, 37101).

CRESTED CARACARA *Polyborus plancus*

SC: Buena Vista, 3 specimens (LSUMZ); Santiago de Chiquitos, Chiquitos, 14 January 1973 (FMNH 295231). Very commonly seen in much of SC (C. G. and D. C. Schmitt, JVR). CH: 30 km SE Carandayti, 23 July 1957 (LACM 88920-21); C. G. Schmitt and D. C. Cole found this species common in the Carandayti area, 11-12 May 1979.

YELLOW-HEADED CARACARA *Milvago chimachima*

CH: 30 km SE Carandayti, 6 August and 3 October 1957 (LACM 35368-69).

LAUGHING FALCON *Herpetotheres cachinnans*

CH: 15 km S Carandayti, 4 August 1957 (LACM 35388).

COLLARED FOREST-FALCON *Micrastur semitorquatus*

CO: Bajo Palmar, 600 m, Prov. Chapare, 30 March 1958 (LSUMZ 35667).

BAT FALCON *Falco rufigularis*

CH: 30 km SE Carandayti, 8 October 1957 (LACM 88933).

CHACO CHACHALACA *Ortalis canicollis*

CH: 30 km SE Carandayti, 14-25 July 1957 (LACM 35410-15).

RED-FACED GUAN *Penelope dabbenei*

TA: 80 km S Tarija, 1950 and 2100 m, 15 January and 12 February 1973, collected by R. Crossin (FMNH-C 25397-99).

BARE-FACED CURRASOW *Crax fasciolata*

BE: Río Mamoré, Prov. Marban, 15 April 1944 (FMNH – C 16397).

RUFOUS-BREASTED WOOD-QUAIL *Odontophorus speciosus*

CO: Alto Palmar, 5 specimens (LSUMZ).

LIMPKIN *Aramus guarauna*

CO: Chipiriri, 3 November 1962 (LSUMZ 35692): Todos Santos, 10 February 1956 (LSUMZ 37145). CH: 30 km SE Carandayti, 30 July 1957 (LACM 35404).

PLUMBEOUS RAIL *Rallus sanguinolentus*

CO: Cochabamba, 1 and 10 November 1953 and 20 December 1962 (LSUMZ 37147, 35695, 37418).

COMMON MOORHEN *Gallinula chloropus*

LP: The only previous record was based on an egg from an unstated locality on Lake Titicaca, given by natives to Niethammer (1953); CM has a series of 6 specimens from Desaguadero, on the Bolivian/Peruvian border at the south end of Lake Titicaca, collected in February, March and April 1922. SC: Curiche, 16 August 1909 (CM 32932) – this locality was given as "not located" by Paynter *et al.* (1975), who stated that it was "Possibly in Santa Cruz at 1629/6259 (USBGN), although not on Río Grande" – Steinbach's field notes (CM) list it as "On Río Grande, between Abapó and Cabezas," and his map on file in CM shows it as c. 12 km ENE of Cabezas, on the Río Grande, SC; Buena Vista, 28 May 1916 and 5 December 1922 (CM 119345, 119811); Santiago de Chiquitos, 25 January 1973 (FMNH 295234); Santiagoma, S. Chiquitos, 600 m, 21 May 1973 (FMNH-C 25483): Laguna Caucaya, 10 km by road E Gutierrez, 875 m, Prov. Cordillera, 15 April 1984, collected by C. G. Schmitt (LSUMZ 123459) – this species was seen by JVR, C. G. and D. C. Schmitt throughout much of northern SC in suitable habitat; CH: 30 km SE Carandayti, 28 August 1957 (LACM 35417).

AZURE GALLINULE *Porphyrula flavirostris*

SC: Buena Vista, October 1925 (LSUMZ 37158; exchanged by George H. Lowery to Instituto Miguel Lillo, Tucumán, Argentina).

WHITE-WINGED COOT *Fulica leucoptera*

CH: 30 km SE Carandayti, 10 July 1957 (LACM 35416); C. G. Schmitt and D. C. Cole found this species common at Laguna Carandayti (c. 4 km NE Carandayti) and other water bodies in the vicinity, 11-12 May 1979.

SUNGREBE *Heliornis fulica*

CO: Chipiriri, 5 December 1962 (LSUMZ 37161). SC: Buena Vista, 18 September 1942 (LSUMZ 37161): Río Palacios, 26 September 1943 (LSUMZ 35700). TA: 15 km SE Capirenda, 20 August 1957 (LACM 35421).

WATTLED JACANA *Jacana jacana*

CH: 30 km SE Carandayti, 16 October 1957, and 36 km SE Carandayti, 17 August 1957 (LACM 35422-23); C. G. Schmitt and D. C. Cole found it common at Laguna Caradayti (c. 4 km NE Carandayti) and other bodies of water in the vicinity, 11-12 May 1979.

SOUTHERN LAPWING *Vanellus chilensis*

CH: 30 km SE Carandayti, 14 July and 7 August 1957 (LACM 35419-20); C. G. Schmitt and D. C. Cole saw 4-5 near Carandayti, 11-12 May 1979.

LESSER GOLDEN-PLOVER *Pluvialis dominica*

LP: Guaqui, 3600 m, 12 April 1922 (LSUMZ 37172). CH: 30 km SE Carandayti, 16 November 1957 (LACM 35433).

COLLARED PLOVER *Charadrius collaris*

LP: 1 mile W Puerto Linares, 600 m, Prov. Nor Yungas, 2 August 1979, collected by W. D. Webster (LSUMZ 91204).

UPLAND SANDPIPER *Bartramia longicauda*

CO: Cochabamba, 10 December 1958 (LSUMZ 35712). SC: Buena Vista, 28 September 1927 (LSUMZ 37178).

GREATER YELLOWLEGS *Tringa melanoleuca*

SC: San Isidro, 400 m, Prov. Ichilo, 16 October 1922 (LSUMZ 37182). C. G. Schmitt collected one at Laguna Caucaya, 10 km E Gutierrez, 875 m, Prov. Cordillera, 30 December 1979 (specimen at Delaware Museum of Nat. Hist.). OR: Puesto Militar de Laguna, Laguna, 4100 m, Prov. Sajama, 5 December 1984, collected by C. G. Schmitt (LSUMZ 123468): one seen by JVR, Lake Uru-uru, 3700 m, 29 January 1977.

SOLITARY SANDPIPER *Tringa solitaria*

CH: 30 km SE Carandayti, 28 August 1957 (LACM 35425).

WILSON'S PHALAROPE *Phalaropus tricolor*

CH: 30 km SE Carandayti, 17 August (2) and 26 September 1957 (LACM 35430-31, 35427). TA: 12 km SW Capirenda, 6 September 1957 (LACM 35428-29). OR: 10 seen by JVR at Lake Uru-uru, 3700 m, 29 January 1977; C. G. and D. C. Schmitt collected one at Puesto Militar de Laguna, Laguna, 4100 m, Prov. Sajama, 7 December 1984 (LSUMZ 123472).

PECTORAL SANDPIPER *Calidris melanotos*

CH: 30 km SE Carandayti, 26 September 1957 (LACM 35426).

STILT SANDPIPER *Micropalama himantopus*

LP: Guaqui, 3600 m, 4 April 1922 (LSUMZ 35717). SC: Near the city of Santa Cruz, 24 August 1937 (CM 125040).

LARGE-BILLED TERN *Phaetusa simplex*

SC: Río Surutú, 15 August 1938 (LSUMZ 37199): 2 were seen c. 70 km E Concepcion, 325 m, Prov. Velasco, 17 June 1984 (JVR, C. G. and D. C. Schmitt).

YELLOW-BILLED TERN *Sterna superciliaris*

SC: Buena Vista, 11 August 1910 (CM 38344, 43765).

BLACK SKIMMER *Rynchops niger*

SC: Buena Vista, 5 November 1925 (CM 119904).

Postscript addenda:

ANDEAN CONDOR *Vultur gryphus*

SC: Buena Vista, 5 September 1929 (CM 120574, mounted); this is the first specimen for lowland Bolivia.

OSPREY *Pandion haliaetus*

SC: Buena Vista, 20 January 1929 (CM 120520); previously known from Bolivia only on the basis of sight records (Remsen & Ridgely 1980).

BROAD-WINGED HAWK *Buteo platypterus*

SC: Buena Vista, 20 February 1924 (CM 119861). This specimen is the basis for Meyer de Schauensee's (1966) listing of this species from SC and is presumably the only record for Bolivia; but we have not been able to find the source for his listing from CO.

GREATER YELLOWLEGS *Tringa melanoleuca*

LP: Guaqui, 4 February 1922 (CM 119771).

GRAY-BREASTED SEEDSNIPE *Thinocorus orbignyianus*

CO: Tiraque, 20 August 1929 (CM 120100). This specimen is presumably the basis for the listing of this species from CO by Meyer de Schauensee (1966).

Additional locality records are as follows: *Tachybaptus dominicus* (SC, Comarapa, 10 October 1926, CM 120163); *Anhinga anhinga* (SC, Buena Vista, 15 November 1924 and 15 June 1927, CM 119888, 119973); *Anas cyanoptera* (CO, Vacas, 5 January 1927, CM 120246); and *Polyborus plancus* (SC, Buena Vista, 5 September 1929, CM 120554).

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Notes on the diets of *Geotrygon montana* and *Columba caribaea* in Jamaica

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We report here our observations on the diet of *Geotrygon montana* and *Columba caribaea* in the Cockpit Country of Jamaica in June 1983 and August 1984, with analyses of crop and gizzard contents from specimens of *G. montana* taken by mist nets.

The Ruddy Quail-Dove *Geotrygon montana* occurs almost throughout the forests of the West Indies and mainland Neotropics, where it combs the forest floor for seeds and fruits. Gosse (1847) noted Jamaican birds consuming the crushed fruits of Mango *Mangifera indica,* fallen berries of Pimento *Pimento dioica,* Physic Nut *Jatropha curcas* and other oil-rich seeds. In examining stomach contents, Gosse found some individuals filled with the berries of sweetwood *Nectandra* spp., and one containing small slugs *(Vaginulus* sp.). Jones (1948) observed captive *G. montana* consuming peanuts, Maple Pea *Psium sativum,* earthworms, slugs, small snails and the chrysalis of small blowflies. Skutch (1949, 1964) described *G. montana* as a ground forager mainly dependent on small invertebrates, mentioning that captive birds ate maize. Wetmore (1968) found seeds of pigeon berry *Bourreria* sp. and *Styrax* sp. in specimens from Panama, and believed the populations there were mainly feeding on seeds and drupes. Cruz (1974) observed *G. montana* in Jamaica feeding on fallen fruits of the fig *Ficus trigonata.*

The endemic Jamaican Band-tailed Pigeon *Columba caribaea* on the other hand forages in tree canopies. In fact, Gosse (1847) considered *C. caribaea* the most arboreal of Jamaican columbids. He recorded *C. caribaea* taking the seeds of Wild Star Apple *Chrysophyllum oliviforme,* Sour Sop *Annona muricata,* Thatch *Calyptronoma occidentalis* and mistletoe Loranthaceae. Lack (1976) observed *C. caribaea* feeding on Milkwood *Sapium jamaicense* and quoted other observers in listing foods including Clammy Cherry *Cordia collococca,* bullet Bumelia sp., rodwood *Eugenia* sp., fig *Ficus* sp. and *Laurus* sp. (cf. *Ziziphys* sp.).

In short, the few documented observations of the diets of these columbids suggest that *G. montana* is a relatively omnivorous ground feeder, while *C. caribaea* feeds in the canopy on a variety of arboreal fruits.

Study Area

The Cockpit Country is roughtly 1800 km^2 of polygonal karst centred in Trelawny Parish, north central Jamaica. The rugged terrain consists of steep, conical hills separated by ''cockpits'' up to 180 m deep. We collected and observed *G. montana* and *C. caribaea* near the town of Quickstep (18°15′N, 77°43′W, 380-540 m) in the southern Cockpit Country. Annual precipitation of 2000-3000 mm supports a ''wet limestone forest'' (Asprey & Robbins 1953) dominated by broadleaved evergreen trees that form an irregular canopy at 9-12 m with emergents up to 30 m or more. An open shrub layer is variable in height and consists mainly of smaller individuals of the canopy species. The herb layer is very sparse in the mature forest and is comprised mainly of ferns and trailing vines. Many of the larger trees support dense populations of epiphytes and lianas.

Mature forest is generally confined to the steep slopes and ridges, the bottomlands being cultivated, grazed or in various stages of recovery. Vegetation species commonly encountered in the slope forest include *Terminalia latifolia, Callophyllum calaba, Ficus maxima, Nectandra antillana, N. patens, Andira inermis, Trichilia moschata, Maytayba apetala, Guarea swartzii, Hibiscus elatus, Xylopia muricata, Oxandra lanceolata, Dendropanax arboreus, Coccoloba longifolia, Calyptronoma occidentalis* and *Syngonium auritum.* Common colonizers of abandoned clearings in the bottomland include *Nectandra antillana, Cecropia peltata, Piper* spp., *Miconia* spp., *Conostegia* sp., *Fagara martinicensis, Lantana camara, Solanum torvum, Bocconia frutescens, Turpinia occidentalis* and *Pothomorphe umbellata.*

Observations and Discussion

Nineteen specimens of *Geotrygon montana* were collected in mist nets, 15 from mature slope forest and 4 from bottomland second growth. Crops and gizzards were preserved from 10 of these specimens, now housed at the Division of Birds of the Smithsonian Institution. At least 8 plant taxa were represented, 5 of which have not previously been reported in the diet of the species (Table 1). The one-seeded berries of *Nectandra antillana* (and quite possibly other *Nectandra* spp.) comprised 61 ± 32% of the dry weight of gizzard contents of these birds, an indication of the dietary importance of this endemic species of tree during this season. Other large fruits included those of *Quiina jamaicensis* (Quiinaceae) and *Xylopia muricata* (Anonaceae), both endemic species, as well as the widespread *Turpinia occidentalis* (Staphyleaceae).

TABLE 1

Crop and gizzard contents from *Geotrygon montana* in Cockpits Country, Jamaica

Plant species	No. of *G. montana* crops	gizzards	% Dry weight of crop contents	% Maximum dry weight of gizzard contents
Nectandra antillana (and perhaps other *Nectandra* spp.)	5	8	100	61
Quiina jamaicenses		1	–	74
Bauhinia divaricata		1	–	10
Turpinia occidentalis		2	–	5
Guapira fragrans		1	–	2
Xylopia muricata		2	–	23
Psychostria spp.		4	–	9

No specimens of *Columba caribaea* were taken, but we observed 5-10 individuals of the species feeding daily for several hours at a time in the canopy (25-30 m) of a large *N. antillana* near our camp site. This tree has not been reported previously in the diet of *C. caribaea.*

Although both columbids fed heavily on *Nectandra* fruits, *G. montana* foraged exclusively on fallen fruits, while *C. caribaea* fed only in the canopy.

Both *G. montana* and *C. caribaea* may be important dispersers of relatively large-seeded fruits such as those of *Nectandra antillana* (and other Lauraceae with similar fruits, such as *N. coriacea, N. patens* and *Licaria triandra)* and *Xylopia muricata.* Ridley (1930) deemed columbids ''the most important dispersers of seeds of any group of birds''. Sayle (1924) doubted that seeds survived passage through the columbid gizzard, but Olson & Blum (1968) and Cruz (1974) have demonstrated the viability of some seeds in the crop and gizzard of two columbids, *Geotrygon lawrencii* and *Columbina talpacoti.* Probably none of the fragmented *Nectandra* fruits in the gizzards of the birds we examined were viable, but seed dispersal could occur from regurgitation or spilling of crop contents.

N. antillana is a common coloniser of abandoned clearings in Cockpit Country. Seedlings of *Xylopia muricata* are frequent in the slope forest, even in the absence of neighbouring canopy individuals (F. Davis, unpublished data). Such recruitment patterns by large-seeded trees suggest effective avian dispersal and potentially an important ecological role for columbids in this area. Columbids are diverse in the West Indies, particularly in Jamaica, where 9 species occur, yet the inter-relationships of West Indian plants and columbids are poorly understood. Our limited observations suggest that mutualistic relationships may exist between an endemic pigeon *(Columba caribaea)* and an endemic tree *(Nectandra antillana),* as well as between the widespread *Geotrygon montana* and several endemic Jamaican tree species. This hypothesis could be tested by additional studies in minimally disturbed areas such as the remote sections of Cockpits Country.

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Subspeciation in *Anthus brachyurus* Sundevall, 1850

by P. A. Clancey

Received 12 April 1985

The small-sized Afrotropical Short-tailed Pipit *Anthus brachyurus* Sundevall, described from the upper Umlaas R., Natal, on material collected by the Swedish explorer/naturalist J. A. Wahlberg, ranges locally from Natal and Zululand, the Transvaal and Mozambique north to Malaŵi, Tanzania, Uganda, Zambia, southern and eastern Zaïre, Angola, Congo-Brazzaville and southern Gabon. The species affects moist short grasslands, breeding down to near sea level in the southeast of its range in Natal and Zululand, but is in the main a plateau breeder, ranging to as high as 2000 m a.s.l. and above in east-central equatorial Africa. While currently assumed to be largely sedentary, recently assembled evidence suggests that it is only a seasonal breeding visitor to many parts of its range.

Appreciation of the subspecifically important geographical variation in *A. brachyurus* is much influenced by the constraints of grass induced abrasion and solar colour modification, the majority of skins in museum collections being in worn breeding condition (collected September-February); fresh dress is assumed April-July. Currently 2 subspecies are recognised: nominate *A. brachyurus* over most of the species' range; and *A.b. leggei* Ogilvie-Grant, 1906: Mokia, SE Ruwenzori Range, of western Uganda and immediately adjacent eastern Zaïre (*cf.* White 1960: 156). Later, however, White (1961: 80) repudiated his earlier acceptance of the discreteness of *leggei.*

Geographical variation in the Short-tailed Pipit affects the colour of the upper-parts and the intensity of the streaking, the colour of the wings, the extent and degree of the lower fore-throat and breast striations and the colouration of the ventral ground. There appears to be little variation of moment in size, that detected being largely the result of the wearing down of wing-tips in breeding birds, which is particularly noticeable in females.

A recent study of this species confirms the distinctness of the Ruwenzori population compared with *A.b. brachyurus,* and shows further that the present nominate race of most workers is composite, the equatorial element present in the mid- and lower drainage of the Zaïre (Congo) R., west to southern Gabon representing a third, and at present innominate, race. This is formally described below, together with the other 2 races on the basis of characters to be seen in freshly moulted specimens.

Anthus brachyurus brachyurus Sundevall

Anthus brachyurus Sundevall, *Oefv. K. Sv. Vet.-Akad. Förhandl.,* vol. vii, 1850, p. 100: "Caffraria, circa Portum", the *Type* from upper Umlaas R., Natal.

Description. Dorsal surface dark olive-brown, the feathers edged light olivaceous buff. Below, with ground to lower fore-throat and breast pale yellow or light yellowish buff, closely streaked with blackish brown. Wings with edges to coverts and outer vanes of remiges light olivaceous buff.

Measurements. Wings of 10 adult ♂♂, 65–68 (66.9), SD 0.92; of 10 ♀♀, 62.5–64 (63.5), SD 0.64 mm.

Material examined. 35 specimens. Natal topotypes of this taxon were collected at the following localities; upper Umlaas R., Durban, Pinetown, Kloof, Richmond, Howick, Giant's Castle Game Reserve, Mkomazi Forest Reserve, Dundee and Isandhlwana.

Range. Southern highlands of Tanzania, and, perhaps, northern Malaŵi, and locally in the southeastern highland system of South Africa from the Transvaal to Natal and Zululand. Non-breeding birds, probably of the latter population, have been taken in the Mozambique lowlands to the north of Beira (in the Savane), and recorded from the lower Limpopo R. flood-plain, and taken on migration once in Zimbabwe (9 November 1981, at Beitbridge at 22°10′S, 29°40′E). One or two specimens of a worn sample from Salujinga, northwestern Zambia, at 10°58′S, 24°07′E, appear attributable to this taxon, but others from northern Zambia lie closer to the Zaïre basin form. The Salujinga specimens are dated late September and early October. A longer series in fresh plumage will be required to sort out possible non-breeding visitors from local residents in Zambia. Occurs on the South African breeding grounds October to early April.

Anthus brachyurus eludens, subsp. nov.

Type: ♀, adult. Breeding. Petianga (Pebeangu), Kasai Occidental, Zaïre, at 04°26′S, 20°55′E (co-ordinates on specimen label given as 04°04′S, 20°08′E), 4 November 1933. Collected by Rear-Admiral Hubert Lynes. In the collection of the Musée Royal de l'Afrique Centrale, Tervuren, Belgium. Mus. Reg. No. 28 288.

In fresh dress *eludens* is more uniform above than nominate *brachyurus* resulting from the browner, less light olivaceous buff, fringes to the feathers. In the wings, the coverts and outer vanes of the remiges are redder – about dull snuff brown *versus* light olivaceous buff. Streaking on lower fore-throat and breast finer, ventral ground yellower. Similar in size to the nominate.

Material examined. 23 specimens. Paratypes were from the following localities: *Kasai, Zaïre:* Kananga (Luluabourg), Kunungu (02°05′S, 16°24′E). Petianga (Pebeangu), Madia, headwaters of the Lubue and Loana Rivers (05°06′S, 19°06′E), and Camma R. (02°31′S, 09°46′E).

Range. The southern drainage fan of the Zaïre R., from Shaba and Kasai Occidental, Zaïre, west to Lunda, northern Angola, Congo-Brazzaville (at Djambala) and Gabon. The birds breeding along the Zaïre/Zambesi watershed in northern Zambia may be attributable to this race.

Measurements of the Type. Wing 59+, culmen from base 12, tail 34 mm.

Remarks. The Type selected was a bird which had just laid and is in somewhat worn dress, and was chosen in order firmly to attach the name *eludens* to an established breeding population.

Anthus brachyurus leggei Ogilvie-Grant

Anthus leggei Ogilvie-Grant, *Bull. Brit. Orn. Cl.,* vol. xix, 1906, p. 26: Mokia, SE Ruwenzori Range, western Uganda.

Blacker, less buffish or olivaceous tinged above, with heavier shaft-streaks, than nominate *brachyurus* in freshly moulted condition. Below, the ground of the lower fore-throat and breast pale vinaceous rather than yellowish, the streaking over the breast much heavier and more diffuse; rest of venter whiter. Size ranging a little smaller than nominate.

Measurements (mm). Wings of 5 ♂♂, 63.5–65 (64.7), SD 0.67; wings of 3 ♀♀, 61.5–63.5 (62.3), SD 1.04.

Material examined. 10 specimens. *Uganda:-* "Uganda", Mokia, Ruwenzori Mtns; *Zaïre:-* Bokalakala (02°05′S, 16°24′E).

Range. Lower aspects of the Ruwenzoris in Toro, Uganda, at 1800–2000 m a.s.l. (Britton 1980: 175). Specimens from Ankole, Uganda (Gaisimairi) taken in February are not *leggei,* but are too worn to determine subspecifically. A singleton of a series taken at Bokalakala, in Kasai Occidental, in the second half of August, is attributable to *leggei* on the basis of the very heavy pectoral streaking, the balance of the sample being more like *eludens.*

Remarks. The Type in the collection of the British Museum (Nat. Hist.), Tring, B.M. Reg. No, 1906. 12.23.506, examined.

The heavy black, somewhat diffuse, pectoral streaking in this taxon resembles the character state in the juvenile dress of the nominate subspecies.

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Notes on *Zosterops* spp. from the Lake Matano area of southeast Sulawesi, Indonesia

by P. R. Holmes and H. J. Holmes

Received 24 May 1985

Six species of the family Zosteropidae are known to occur in Sulawesi (Stresemann 1939-1941; Mees 1957, 1961, 1969). These are *Zosterops chloris, Z. montana, Z. atrifrons, Z. anomala, Z. consobrinorum* and *Lophozosterops squamiceps.* The former 3 species are widespread in the Indonesian region, with several races of *Z. atrifrons* and *Z. chloris* occurring in Sulawesi. The other 3 are endemic to Sulawesi.

The known distributions of white-eye species in Sulawesi were recorded by Stresemann (1939-1941). Only *Z. montana* and *L. squamiceps* have been recorded there as widespread, with the other species only found in restricted areas. *Z. anomala* is recorded only from the southern peninsula. *Z. atrifrons* has been found on the northern peninsula, the north part of the central region, and on islets off the eastern peninsula. *Z. consobrinorum* is the least known species (Mees 1969), having been found only on the little explored southeastern peninsula. Lack (1971) thought these latter 3 species *(anomala, atrifrons* and *consobrinorum)* geographically replaced each other in lowland areas. *Z. chloris* has been found on the southern peninsula, the northern part of the central region, islets off the northern and southeastern peninsulas and recently the eastern peninsula (White & Bruce in press); where it overlaps with *Z. anomala* in the southern peninsula the 2 species are found in different ecological zones (Lack 1971).

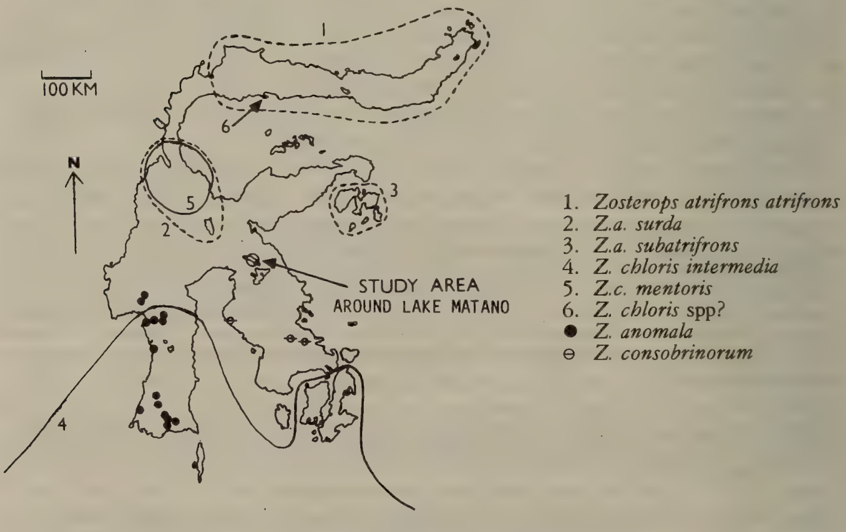

Figure 1. The distribution of *Zosterops* species in Sulawesi (after Mees 1961). *Zosterops montana* and *Lophozosterops squamiceps* are described as widespread.

We spent from late July to early September 1979 in the Lake Matano area, at the northern end of the southeastern peninsula of Sulawesi. Though near the central region, our understanding is that the area is part of the southeastern peninsula. Sites studied ranged in altitude from 250 to 400 m a.s.l. Habitats examined included disturbed scrub in Soroako town, secondary scrub at the forest edge, and true forest. The study area and the full results of this expedition are presented elsewhere (Holmes & Wood 1979). Much of the time was spent netting birds for identification.

Of the 27 white-eyes trapped, 24 were identified as *Z. atrifrons* and 3 as *Z. consobrinorum.* Measurements taken from captured birds included the standard measures for wing (maximum chord) and tail.

Zosterops atrifrons

This species, easily identified by the distinct black forehead (see photographs in Holmes & Wood 1979 and Wood & Holmes 1981) had not previously been recorded from the southeastern peninsula; Lake Matano is over 100 km from the nearest known population, at Lake Poso. It was found in scrub patches around the town of Soroako, in areas cleared of forest for agriculture and at the forest edge.

TABLE 1

Measurements (mm) of *Zosterops atrifrons* from Sulawesi

		Wing		Tail		Tail/Wing
Race	n	range	average	range	average	ratio x 100
atrifrons	14	54–56.5	54.79	34.5–38	36.18	66.04
surda	16	55–62	57.5	37.4–42	39.5	68.70
subatrifrons	3	53–56	54.17	37–38	37.5	69.23
Lake Matano	24*	52–58	54.42	36–46	39.46	72.51

From Mees (1961). *Measurements were not taken from all 24 birds since some were in different stages of moult. The weights of 21 individuals at Lake Matano ranged from 8.3 to 9.7 g (mean 8.93 g).

The 3 subspecies of *Z. atrifrons* known from Sulawesi are the nominate from the northern peninsula, *surda* from the north central region and *subatrifrons* from islands off the eastern peninsula. Mees (1961) suggests that Finsch (1901) may have been correct to synonymise *subatrifrons* with the nominate, since there is little difference in the measurements or colouration. Table 1 compares the measurements taken from Mees (1961) with the birds from the Lake Matano area. Some of the Lake Matano birds were in primary and/or tail moult, so measurements from these birds have been excluded from the table. It is appreciated that Mees was measuring from skins.

The wing lengths of the Lake Matano birds agree with those of *atrifrons* and *subatrifrons,* whereas the long tail agrees with that of *surda.* The combination gives rise to a higher tail/wing index than for the described subspecies. Plumage characteristics of the Sulawesian races, described in Mees (1961), are green back with rump at most slightly more yellow, throat lemon-yellow (nominate) or greenish-yellow *(surda, subatrifrons),* lemon-yellow under tail coverts and greyish-white underparts. The legs of the nominate race are pale horn. The Lake Matano birds had a marked yellow rump, golden-yellow throat, yellow undertail coverts with the rest of the underparts white. The legs were dark grey.

From the biometric data and plumage characteristics (no skins were collected) it is not possible to ascribe the Lake Matano birds to any of the known Sulawesi subspecies of *Z. atrifrons. Zosterops* is a sedentary genus, and with Lake Matano being 100 km from the nearest known race it may well be that the population represents an undescribed subspecies, for which the name *soroakensis* would be appropriate.

Zosterops consobrinorum

This species was less easy to identify than the preceding species. It does not have the black forehead of *atrifrons,* and *anomala* is excluded by the presence of a white eye-ring. It is separable from *Z. chloris* by its white abdomen and belly as opposed to the latter's all yellow underparts, and from *Z. montana* by the golden-yellow throat and undertail coverts, which in *montana* are greenish-yellow. Also *montana* was found above 1000 m by Stresemann (1939-1941), and above 900 m in Lore Lindu (north-central Sulawesi) by Watling (1984), well above the height of Lake Matano. *Z. consobrinorum,* however, is very similar to *Z. citrinella,* which is more southerly, being distributed from Sumba to Australia; Mayr (1965) thought that they were probably conspecific, although in fact he kept them separate.

Z. consobrinorum had previously only been recorded from 3 localities in southeast Sulawesi (Laloumera, Lalolei and Wawo – Mees 1961), the nearest (Wawo) over 100 km from Lake Matano. Stresemann (1939-41) describes this species as a bird of bushes, gardens and forest remnants. We found it in the forest edge and in an area of forest replanting.

The plumage description and colour of the soft parts of the birds trapped at Lake Matano agree exactly with those given in Mees (1961). Their measurements are compared in Table 2 with measurements given by Mees (1961).

TABLE 2

Measurements (mm) of *Zosterops consobrinorum* from Sulawesi

		Wing		Tail		Tail/Wing
Source	n	range	average	range	average	ratio x 100
Mees (1961)	16	51–56	53.22	33–37.5	35.91	67.47
Lake Matano	3	56–60	58	41.5–44	42.8	73.79

Weights of 2 individuals at Lake Matano were 9.8 and 10.4 g.

Much still needs to be discovered about the range of this species in southeast Sulawesi, and more information is needed on variation within the species. However, although the sample size is small, the Lake Matano birds appear to be larger than those measured by Mees.

At one site we found *consobrinorum* and *atrifrons* overlapping, and on one occasion trapped one *consobrinorum* and 2 *atrifrons* together. Therefore the 2 species do not completely geographically replace each other in the manner suggested by Lack (1971).

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Notes on Philippine birds, 7. Recent records of the Chinese Egret *Egretta eulophotes* from Luzon, Mindoro and Palawan, Philippines.

by Stephen E. Gast & Ben King

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The Chinese Egret *Egretta eulophotes* is considered a rare winter visitor to the Philippines by duPont (1971). Amadon (1951) records it as casual from Bohol, Cebu, Panay and Samar; Baud (1978) from Palawan; and Kuroda (1913) from Basilan. Reported here are first records for the islands of Mindoro and Luzon and additional records from Palawan.

MINDORO.

S.E.G. observed a single *E. eulophotes* on 9 April 1981 and 3 on 22 April 1981 in a large estuarine area of fish ponds and salt farms at Barrio Caminawit, Municipality of San Jose, Occidental Mindoro. The 9 April bird (observed at 50 m) was with a large mixed flock of Little Egrets *Egretta garzetta* and Great Egrets *E. alba.* On 22 April, 3 Chinese Egrets (observed at 40 m) were together on the perimeter of a flock of c. 50 Great Egrets and 8 Little Egrets, foraging in open water 10-15 cm deep, constantly ''dancing'' with high quick steps and with wings frequently extended or occasionally flapping. This behaviour is reminiscent of the feeding method of the Reddish Egret *E. rufescens* of the Gulf of Mexico in North America, and may be a useful field characteristic in recognising Chinese Egrets in large mixed flocks, particularly when not in breeding plumage. All these Chinese Egrets had well developed shaggy crest plumes, all-yellow bills and blackish legs with greenish-yellow feet. Due to the excellent viewing conditions on 22 April, the bluish facial skin, a species-diagnostic feature, was clearly seen on each of the 3 birds.

LUZON, Batangas Province

On 1 April 1983, S.E.G. watched 7 Chinese Egrets at one of 2 large solitary fish ponds c. 2.5 km SSE of Barrio Matabungkay, Province of Batangas, Luzon. At a distance of 20 m, all field marks, including the bluish facial skin, were clearly visible on all 7 birds. Also present in the same feeding group were 25 Little Egrets, 2 (one white phase and one dark phase) Pacific Reef Egrets *E. sacra,* and nearby, 5 Grey Herons *Ardea cinerea.* It was noted that the white phase Pacific Reef Egret had decidedly greener legs, much shorter crest plumes and a coarser, less elegant appearance than the Chinese Egrets. Only 5 Chinese Egrets and 15 Little Egrets were at the pond on 2 April 1983. Both visits were made during extreme high tide.

LUZON, Nueva Ecija Province

On 23 April 1983, S.E.G. and others sighted 8 Chinese Egrets with 2 Cattle Egrets *Bubulcus ibis* c. 6 km NE of San Jose, Province of Nueva Ecija where the Talavera River emerges from the foothills of the Central Cordillera of Luzon. This point is c. 30 km downstream south of Dalton Pass, a well known focal point for the passage of migratory birds. All 10 birds were closely grouped in a corner of a planted rice paddy. From 5 km, well developed crest plumes, yellow bills and black legs were seen on the 8 birds, but there was low cloud cover and high gusty winds and we did not approach the birds to see their yellow feet or recognise bluish facial skin.

PALAWAN

On 18 April 1983, a flock of 28 Chinese Egrets was observed from c. 50 m on the beach off the end of the runway of the Puerto Princesa Airport, Province of Palawan by B.K. and others. Twelve of the egrets were in full breeding plumage, the rest in winter plumage. Next day, only 6 Chinese Egrets remained. (Field notes for these sightings are on file at the American Museum of Natural History in New York.) Subsequent sightings in the same area included a single Chinese Egret on 9 May 1983 and again on 20 May 1983.

COMMENTS. In his discussion, Amadon (1951) mentions the possibility that the Chinese Egret may be resident in the Philippines. Although these records do not support or refute this possibility, the presence of 8 birds on Luzon in a known migration pathway, in a rice paddy well inland, which is apparently not the preferred habitat, does suggest that they were migrants. However, in view of the repeated sightings of Chinese Egrets in Mindoro in April and in Palawan in April and May, we believe these areas should be investigated for possible breeding localities, as well as for favoured wintering localities. Both areas provide extensive suitable habitat with relatively low human population densities. One possible egret breeding colony (or possibly only a roost site?) was spotted during a helicopter flight over Mangarin Bay SSE of San Jose, Occidental Mindoro. This was situated on a small isolated mangrove island (c. 30 x 50 m) in the south central portion of the tidal basin and contained 150 or more white egrets.

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A second specimen of *Mirafra (Heteromirafra) sidamoensis* Erard

by J. S. Ash and Storrs L. Olson

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An expedition by the Paris Museum to Ethiopia collected an unknown lark within 2 km south of Negelli (5°20′N, 39°35′E), Borana, in Sidamo Province, on 18 May 1968, this being the only specimen seen in 2 visits to the area (a second expedition unsuccessfully sought the bird in October and November 1971). The specimen was described by Erard (1975) as a new species, *Mirafra (Heteromirafra) sidamoensis.*

On 15 April 1974, one of us (J.S.A.), unaware of the French finding, collected a male lark with well-developed testes (7 x 4 mm), weighing 30.2 g, at 12 km southeast of Negelli at 5°16′N, 39°42′E. It bore a superficial resemblance to a Flappet Lark *Mirafra rufocinnamomea,* although it was paler than the very dark chestnut birds with which J.S.A. was familiar in western Ethiopia (specimens of which were identified later as *M.r. tigrina,* a subspecies previously unknown in Ethiopia). The specimen keyed out as *M. rufocinnamomea* in Mackworth-Praed & Grant (1955), and because it was paler than the west Ethiopian birds previously seen by J.S.A., and which were assumed to be *M.r. rufocinnamomea* (the only form then known in the northern part of the country), it was thought possibly to be an example of the southern race *M.r. torrida.* However, there was no comparative material available in Ethiopia, so the specimen was sent to the Smithsonian Institution for identification.

Unfortunately the bird was not looked at again until October 1977, so that it was not available to Erard when he described his specimen. His opinion was that the existing knowledge of the genus *Heteromirafra* was insufficient to warrant splitting it off from *Mirafra,* so that he named his bird *Mirafra sidamoensis* and suggested that it should be one of a superspecies with *M. ruddi* of South West Africa and *M. archeri* of northern Somalia (formerly British Somaliland), and closer to the latter. We agree that *sidamoensis* is clearly close to *archeri,* and consider that such a distinctive allopatric form as *sidamoensis* should continue to be regarded as a separate species.

Erard (1975) has discussed already the affinities of the 3 members of this superspecies and their remarkably restricted ranges, so that it is only necessary now to compare the present bird, which shows no sign of moult, with his description of *M. sidamoensis.* In size the specimens are very close (Erard's measurements in parenthesis): wing (chord; Erard did not specify) 86 mm (87); tail 55.5 mm (56.5); bill (the longest measurement possible was still 1.5 mm less than Erard's) 14.0 mm (15.5); hind claw (the longest possible measurement was made) 16.1 mm (16.5); tarsus 29.0 mm (29). Erard did not specify which dorsal feathers he used in his Figure 1, but the patterns of the two outer rectrices and the inner secondaries (''RMS'') in the present specimen are exactly as given by Erard, and despite variability in pattern among the median coverts (''MC'') and greater coverts (''GC''), all certainly have the diagnostic light coloured shaft streaks of *sidamoensis.* The only seeming discrepancies with Erard's description arise with the colouration, but this is possibly due to individual describer's interpretation. What in Figure 1 he calls ''brun'' we would refer to as blackish, and what he calls ''roux'' we would call brown. His ''roux clair'', as exemplified especially by its use to depict the colour of the outer rectrices, is clearly the same as ''roussâtre'' or ''brun roussâtre'' in his diagnostic description (p. 123). This is the distinctive deep, almost pinkish fawn colour that characterises all the lighter parts of the new specimen (except the throat, which is whitish), including the lower parts and the margins of the rectrices, remiges, coverts and dorsal feathers. For the inner secondaries, median and greater coverts, Erard depicts the margins or parts thereof, as ''crème'', whereas in the new specimen these are invariably the same ''roux clair'' as the rectrices.

Thus it would seem that the new specimen is unquestionably another example of *M. sidamoensis,* but that perhaps it is even more intensely (or extensively) reddish than the holotype.

The area in which our specimen was collected is only about 10 km from Erard's site, but the habitat there may differ in some respects in being an open area of grassland, some 5-6 km in diameter, surrounded by *Acacia/Commiphora* bush. Part of this open area supports open stands of low whistling thorns *Acacia drepanolobium.* The area is grazed by domestic animals and small herds of Grant's Gazelles *Gazella granti* and Oryx *Oryx beisa,* and in April 1974, although much new grass was growing during the seasonal rains, there were extensive areas of tall dead grass, some of it forming tussocks. Associated species of birds included Ostrich *Struthio camelus,* Black-bellied Bustard *Eupodotis melanogaster,* Coqui Francolin *Francolinus coqui,* Plain-backed Pipit *Anthus leucophrys,* Black-winged Plover *Vanellus melanopterus,* Tiny Cisticola *Cisticola nana,* etc. In this undulating country, at least one other open area of grassland was visible at a distance, and it is possible that there are many more over a wide area of apparently similar country; it is in these places where the species should be sought in the future.

Erard could not be certain that his bird was a specimen of the species of lark that was present in 'flappeting' flight in his collecting area, and this comment applies to the new site also. Several larks were flappeting there in April 1974, and it is believed that it was one of these which was collected as it descended to earth, but this is not certain. Similar birds were seen on other occasions in April 1971 and April 1973 at 24 and 48 km southeast (on the track to Filtu) and 48 km south (on the track to Arero) from Negelli. Although it is uncertain that these birds were *M. sidamoensis,* these are additional areas in which the species should be sought in the future.

References:
Mackworth-Praed, C. W. & Grant, C. H. B. 1955. *Birds of Eastern and North Eastern Africa.* Vol. 2. Longmans: London.
Erard, C. 1975. Une nouvelle Alouette du sud de l'Ethiopie. *Alauda* 43: 115–124.

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The inner toe of *Megatriorchis, Erythrotriorchis* and *Harpyopsis*

by Walter E. Boles and Kate Lowe

Received 20 June 1985

Certain species of the Accipitridae, the milvine kites *(Milvus, Haliastur, Haliaeetus,* etc.), have the first and second basal phalanges of the inner toe (digit II) fused into a single unit. Though this has been known for some time and has been used as a taxonomic character in this group, Olson (1982) was the first worker to investigate the distribution of this character in a systematic manner. He was able to examine skeletons, and as needed, dissect alcoholic and skin specimens, for representatives of all but 7 accipitrine genera. Among these 7 omissions are 3 monotypic Australasian taxa: *Harpyopsis, Erythrotriorchis* and *Megatriorchis.*

While we had no skeletons of these genera available, we were able to check for the presence of fused phalanges by X-raying the feet of prepared skins. In 2 specimens each of *Erythrotriorchis radiatus* and *Harpyopsis novaeguineae* and one of *Megatriorchis doriae,* the bones of digit II were unfused. This result is not unexpected since none of these genera has been considered closely related to the milvine kites. As a comparison, a skin of one milvine species, *Milvus milvus* (a species not examined by Olson), was included; fusion was found in digit II. While these findings do not shed new light on relationships among the diurnal raptors, they do help complete Olson's survey of this character.

This exercise also demonstrates the usefulness of X-ray as an alternative technique when skeletons or dissection specimens are not available. We employed a very fine paper, for which settings of 30 kV and 5 mA with an exposure of 50 seconds at one metre gave satisfactory results, although we do not claim that these are optimal; further investigation may yield better parameters and these may vary according to the equipment and paper and to the size and configuration of the specimens. We recommend that the remaining genera which were unavailable to Olson be examined in this manner.

Acknowledgements: We wish to thank Dr R. Schodde, CSIRO Division of Wildlife and Rangelands Research, for the loan of the specimen of *Megatriorchis* and Mr B. Hough for valuable assistance with the X-raying.

References:
Olson, S. L. 1982. The distribution of fused phalanges of the inner toe in the Accipitridae. *Bull. Brit. Orn. Cl.* 102: 8–12.

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Books Received

Feare, C. J. 1985. *The Starling.* Pp. 24. Coloured and black-and-white illustrations. Shire Natural History Series No. 7. Card covers. 21 x 15 cm. £1.25.

Flegg, Jim. 1985. *The Puffin.* Pp. 24. Coloured and black-and-white illustrations. Shire Natural History Series No. 2. Card covers. 21 x 15 cm. £1.25.

Nicely illustrated and well written scientific introductions to two well studied species, intended for the interested layman or young student.

Forthcoming:

White, C. M. N. & Bruce, M. D. 1986. *The Birds of Wallacea* (the Moluccas, Sulawesi and the Lesser Sundas). British Ornithologists' Union Checklist No. 7. Pp. 575 (approx.). To be published in February 1986. 25 x 16 cm. Price unfixed, probably £30-35 + £3.00 if payment is not in sterling) post free.

A comprehensive and very detailed coverage of this important transitional avifauna between the SE Asia and Australia/New Guinea regions by the late C. M. N. White, brought up to date and annotated by M. D. Bruce, dealing with over 670 species, especially their taxonomy, distribution and status. There is an important chapter on the zoogeography of the region by C. M. N. White amongst other introductory sections covering breeding, migration, climate, vegetation, ornithological exploration, 4 appendices and a bibliography of some 1600 entries.

Obtainable from BOU, c/o Zoological Society, Regent's Park, London NW1 4RY.

Salim Ali. 1984. *Birds of Kerala.* Pp. 444. 101 species illustrated in colour, 32 in black-and-white, by D. V. Cowen. End paper maps and 12 plates. Oxford University Press India. 25 x 16 cm. £15.00

This is a useful reprint of the 1969 second edition of what was called in the first edition "The Birds of Travancore and Cochin" (SW India). The standard of production, both of text and illustrations, is satisfactorily higher than the earlier editions. For each of the 386 species, information, sometimes quite detailed, is given about references, local names, size, field characters, status and habitat, extralimital distribution, general habits, nesting and racial characteristics and measurements.

Steyn, P. 1984. *A Delight of Owls.* Pp. 159. Profusely illustrated with black-and-white and 24 colour plates by the author. Introduction by Eric Hosking. Tanager Books (Dover, New Hampshire) and David Philip (Cape Town). (Distributed in UK by Global Book Resources, 109 Great Russell Street, London WC1B 3ND.) 25 x 16 cm. £17.50.

Accounts of the 12 species of owls found in southern Africa, illustrated by the author's very high standard of photographs, which have been acquired painstakingly over a spread of 30 years, those of the Barred and Cape Eagle Owls being the first taken at the nest at night. The text is popularly written, but it contains much data gathered in the field and aviary and though difficult to extract without the need to read the whole text, in doing so one would besides pleasingly gain some of the author's enthusiasm for his subjects.

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EDITED BY
Dr J. F. MONK

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PREFACE

The continued buoyancy of the Club's finances has allowed publication of 36 pages more than in 1985 – of considerable benefit to authors, who would otherwise have had possibly to wait over 12-15 months for publication, and also it is hoped of benefit to readers. Authors of many nationalities worldwide continue most welcomely to submit papers, almost all of a high standard. I am grateful for the support and advice of referees so readily offered, and once again to Caxton & Holmesdale Press for their kind attention to editorial requests. J. H. Elgood is to be thanked once again for his careful compilation of the Index, and the Hon. Secretary and Treasurer for maintaining the list of members.

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CORRIGENDA

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p. 4, line 11: '*Dendragapus*' not '*Dendrogapus*'
p. 11, line 10: '*Lymnocryptes*' not '*Limnocryptes*'
p. 27, 11 lines from foot: '*burmeisteri*' not '*burmeisterii*'
p. 60, line 30: '*spilonota*' not '*spilonotus*'
p. 94, line 26: '*Eudynamys*' not '*Eudynamis*'
p. 116, line 24: '*micropterum*' not '*microptera*'
p. 162, 14 lines from foot: '*fraseri*' not '*frazeri*'
p. 170, line 25: '*Rostrhamus*' not '*Rosthramus*'

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Deaths

The Committee very much regrets to report the deaths of the following Members:

Captain J. CUNNINGHAM, Snr (Member 1927-1986).
The Reverend R. C. LONG, B.Th. (Member 1961-1986).
Mr G. WOOSEY (Member 1985-1986).

Resignations in respect of 1986:

D. W. BROWN, Dr K. M. HOWELL, W. A. READ.

Removed from membership under Rule (4):

S. J. AMBROSE, J. A. KIESER, N. KURODA, A. NOVAL, A. J. OWENS, M. D. WILLIAMS, C. R. WOOD.

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FORTHCOMING MEETINGS

Tuesday, 13 May 1986 (please note the changed date) at 6.20 pm for 7 pm in the Banqueting Suite at the Snooker Centre, 121 Holborn, E.C.1, **Commander M. B. Casement, O.B.E., R.N.** will speak on **"Land bird migration as seen from ships at sea".** There will be a hot buffet meal and those wishing to attend should send their acceptance with a cheque for £6.30 a person to reach the Hon. Secretary at 2 Chestnut Lane, Sevenoaks, Kent TN13 3AR by first post on 29 April, if possible*. The Snooker Centre is on the N.W. side of Holborn Circus, about 200 yards from Chancery Lane tube station.

Commander Casement is Chairman of the Royal Naval Bird Watching Society and has a very wide knowledge of this subject.

Tuesday, 22 July 1986 at 6.20 pm for 7 pm in the Senior Common Room, **SHERFIELD BUILDING,** Imperial College, S.W.7, **Mr Alan Tye** will speak on **birds in Sierra Leone.** Those wishing to attend should send their acceptance with a cheque for £5.30 a person to reach the Hon. Secretary (address above) by first post on 8 July, if possible*.

Mr Tye, of the Institute of Terrestrial Ecology, Monk's Wood Experimental Station, is lately Lecturer in Zoology at the University of Sierra Leone and has an extensive knowledge of the avifauna of that part of West Africa.

The Sherfield Building is in the main block of Imperial College, on the west of Exhibition Road, roughly midway between the Natural History Museum and Albert Hall. The Senior Common Room is on level 2.

The Meeting announced for 1 April 1986 will not now take place, because of difficulties that have arisen through the nearness of the Easter Bank Holiday.

*It will be possible to take acceptances up to the weekend before the Meeting, but Members are asked to accept by 14 days before the Meeting, if they possibly can, to avoid a substantial number of late acceptances, as we have to notify approximate numbers 14 days before a Meeting.

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REPORT OF THE COMMITTEE FOR 1985

Meetings. Six Meetings were held in 1985. The April Meeting was held in the Senior Common Room, Sherfield Building, Imperial College and those in January, March, July and September in the Senior Common Room, Prince's Gardens, Imperial College, our usual venue in recent years. In November, 3 video films were projected in the Lecture Theatre of the British Museum (Natural History), Cromwell Road, after which there was supper, followed by an address in the Senior Common Room in Prince's Gardens: these arrangements were made so as to obtain the best facilities for both video projection and supper. The May Meeting was cancelled because of a threatened transport strike, except for the Annual General Meeting, which was adjourned until July. A Meeting was arranged for October, thus enabling the usual six Meetings to be held in the year. In January and September there was dinner: at the other Meetings there was a hot buffet supper with seating at small tables, so that prices could be appreciably lower than for dinner, but still with pleasant service. The attendance of 83 in November was the highest for the Club since Field-Marshall Viscount Alanbrooke showed films in January 1953 and the total attendance in the year of 259 (153 Members and 106 guests) was the highest (except for 1980, when there were 8 Meetings) since 1964. Unfortunately accommodation at Imperial College may not be so regularly available in future and the Committee has had to consider the need to meet elsewhere on occasion in the future. The Committee met 6 times and the average attendance of the members was 80%.

Deaths. It is with very deep regret that the Committee reports the deaths of Professor J. Boyes, F.R.C.S.E., F.D.S. (Member 1953-1985), Monsieur J. Delacour (Member 1920-1985) and Mr E. W. Mudge, Jr (Member 1966-1985). An obituary of M. Delacour, whose first contribution to the *Bulletin* was the description in 1921 of a new species, appeared in *Ibis* 128: 141 and there was an obituary of Mr Mudge, who made a number of donations to the Club, in *Auk* 102: 869.

Membership. There were 64 new Members in 1985, 2 re-joined and 2, who were in arrears at the end of 1984, paid up to date in 1985. There were 6 Members who resigned in respect of 1985 and 10 failed to pay their subscriptions during the year. Paid-up membership at the year end was 459 (263 U.K. and 196 overseas), an increase of 49 in the year and a record number. In January 1985 10 Members were struck off under Rule (4), having been in arrears with their subscriptions due in 1984 and resignations in respect of 1984 were received from 3 Members. Of the 64 new Members, 11 were members of the British Ornithologists' Union before July 1984, when a Club publicity leaflet was sent out as an insert in *Ibis;* of the 53 elected by the Union subsequently, a maximum of 11 applied for Union membership on the forms enclosed in *A Dictionary of Birds.* It will thus be seen that the large inflow of Members to the Club in 1985 was to only a minor degree attributable to special factors. None of those who applied for Union membership on the forms enclosed in *Bird Study* in November 1985 was elected by the Union in time to seek Club membership before the end of the year.

There was a decline in the number of non-member subscribers to the *Bulletin* in 1985 to 162 (24 U.K., 138 overseas); 9 lapsed, against 3 who were new and 3 restored to the list after a brief absence. Thanks to the pegging of printing charges during the year, it was possible to maintain the subscription price of the *Bulletin* at £15 for both 1985 and 1986.

Ten years ago, at the end of 1975, there were 252 Club Members and 125 non-member subscribers. The increases of 82.1% and 29.6% respectively are gratifying:– as regards membership, because those eligible (i.e. Union members only) have increased by 3.8% in the same period; and as regards non-member subscribers, because it has been a period when scientific journals generally have had slowly declining subscription lists.

The Bulletin. Volume 105 of the *Bulletin* consisted of 144 pages. Delay in publication of papers remains at 6-9 months from date of receipt. Forty four papers were published in 1985 from 59 different authors of diverse nationalities covering such wideflung areas as Sulawesi, Bolivia, Sinai, Comoro Islands, Australasia, Guinea, Philippines, Tanzania, Jamaica, Fiji, West Africa, Amazonia etc. Subjects were from an equally wide field and included biometry, mensural data, diet, plumage, avifaunal and specific field distributions, and, especially, systematics and taxonomy.

***Bulletin* back numbers.** We are extremely grateful to the heirs of the late Professor J. M. Winterbottom, Member 1955-1984, for the gift of a complete bound set of the *Bulletin* up to Vol. 40 (except for a single volume only) and for a number of subsequent loose parts. With these as a basis, to which we have added by the purchase of a number of later bound volumes, and by having loose parts held in stock bound, we plan to have a complete bound set for the use of the Editor; our one gap is Vol. 32 and we should be very glad to hear from anyone who would give or sell a copy to the Club. Complete runs of the *Bulletin* back to Vol. 37 (1916-1917) can be supplied from stock and it was decided to reprint various earlier issues. We are also much indebted to Mr Josias Cunningham, Sr, for the gift of his long series of back numbers and to the family of the late Mr C. W. Mackworth Praed for the gift of a quantity of back numbers.

"Clovelly". Ownership of ''Clovelly'', the house at Tring of the late Mr Herbert Stevens, passed absolutely to the Club on 1 June 1985 under the terms of his Will and it is held in the names of the 3 trustees for the Club appointed by virtue of the relevant resolution passed at the 1985 Annual General Meeting. The fees of the former trustee (Williams and Glyn's Trust Company Limited) and the Club's conveyancing costs will be seen in the Income and Expenditure Account for 1985.

Finances. The accounts for 1985 are not yet available. They will be tabled at the Annual General Meeting and published subsequently in the *Bulletin. Members wishing to see copies of the annual accounts before the Annual General Meeting will be sent them on application to the Hon. Treasurer.*

The Annual General Meeting is at 6 p.m. on Tuesday, 20 May and it is hoped that as many Members as possible will come, so that their views on matters of interest to them may be known.

ANNUAL GENERAL MEETING

The 1986 Annual General Meeting of the British Ornithologists' Club will be held in *the Banqueting Suite, The Snooker Centre, 121 Holborn, London E.C.1* at 6 p.m. on Tuesday, 13 May 1986.

AGENDA

1. Minutes of the last Annual General Meeting (see *Bull. Brit. Orn. Cl.* 105: 42, 81-82).
2. Report of the Committee and Accounts for 1985.
3. The *Bulletin.*
4. Election of Officers. The Committee proposes that:—
    - (a) Revd. G. K. McCulloch, O.B.E., be elected Chairman *vice* Mr B. Gray, who retires on completion of his term of office and is ineligible for re-election,
    - (b) Mr D. Griffin, M.A., be elected Vice-Chairman *vice* Revd. G. K. McCulloch, who retires on completion of his term of office,
    - (c) Mrs D. M. Bradley be re-elected Honorary Treasurer,
    - (d) Mr R. E. F. Peal be re-elected Honorary Secretary,
    - (e) Mr J. H. Elgood and Mr N. H. F. Stone be elected members of the Committee *vice* Mr D. Griffin, who retires by rotation and Mr S. A. H. Statham, who is resigning.
5. Any other business of which notice shall have been given in accordance with Rule (7).

By Order of the Committee,
RONALD E. F. PEAL
Honorary Secretary

The seven hundred and sixty-second Meeting of the Club was held on Tuesday, 19 November 1985, at 6 pm. in the Lecture Theatre of the British Museum (Natural History), Cromwell Road, London S.W.7. Mr J. H. R. Boswall showed 3 video films which he had brought from the Soviet Union. The films were introduced and commented on by Michael G. Wilson, who is Russian-speaking, having lived twice in the USSR, and has written about its birds (1976, *Bristol Ornithology* 9: 127–152). The first was an amateur colour film (c. 12.5 mins) taken by Boris N. Veprintsev, on the breeding grounds in Yakutia, northeastern Siberia, of the Little Curlew *Numenius minutus* in 1978 (see Labutin *et al.* 1982, *Ibis* 124: 302–319). (A mute 16 mm film copy is held in the British Library of Wildlife Sounds. All 3 video films are available for hire).

The second was a professional film (7.5 mins), made in 1977 under the direction of Boris N. Veprintsev, called "The display of the Siberian Spruce Grouse" *(Dendrogapus falcipennis),* one of about 23 Soviet endemic breeding birds, and filmed in southern Yakutia, near Tchegdomyn.

The third film (19.5 mins), called "In the home of the Ibisbill" *(Ibidorhyncha struthersii),* was made in Kazakhstan, in Soviet Central Asia, by Viaceslav Belialov for Kazakhtelefilm. First shown in 1980, it attracted much attention at the 18th International Ornithological Congress in Moscow in August 1982.

Mrs J. Pope kindly arranged the projection of the films, which concluded about 6.50 pm.

The company then proceeded to the Senior Common Room, South Side, Imperial College in Prince's Gardens, where a hot buffet supper was served at 7.30 pm, after which Mr Boswall spoke on "The Soviets and their Birds". He had described this as 'A rambling but reasonably accurate excursion into ornithology and bird watching, bird conservation and aviculture, falconry and birds as pests, all in the U.S.S.R.' and it fulfilled expectations with a mass of information wittily presented. It is hoped that an abstract of his talk may be contributed to a future number of the *Bulletin.* The Meeting closed at 9.40 pm.

The attendance was 40 Members and 43 guests. Members present were: B. GRAY *(Chairman),* J. H. R. BOSWALL, Mrs DIANA BRADLEY, D. R. CALDER, Commander M. B. CASEMENT, R.N., S. J. W. COLES, P. R. COLSTON, R. F. COOMBER, P. J. CONDER, Dr L. CORNWALLIS, B. CRADDOCK, N. J. CROCKER, J. H. ELGOOD, R. J. FARMER, A. GIBBS, J. GORDON, P. HOGG, S. HOWE, D. JOHNSTON, R. H. KETTLE, J. KING, I. T. LEWIS, Revd. G. K. McCULLOCH, Dr J. A. K. MELDRUM, Dr J. F. MONK, Mrs AMBERLEY MOORE, P. J. OLIVER, J. G. PARKER, R. E. F. PEAL, W. S. PECKOVER, R. C. PRICE, N. J. REDMAN, R. E. SCOTT, N. H. F. STONE, A. R. TANNER, K. V. THOMPSON, T. W. G. C. TWIGGS, A. TYE, C. E. WHEELER and Lieut.-Colonel T. C. WHITE.

Guests present were: Miss F. ABRAHAM, S. ALEXANDER, M. BRAGG, Miss S. BRENNAN, Mrs H. BRIGSTOCKE, J. CHAPPELL, Mrs PAT CHAPPELL, J. CROCKER, Commander J. FIDDIAN-GREEN, R.N., J. B. FISHER, Dr D. FOSKETT, Mrs B. M. GIBBS, G. J. HAWGOOD, L. HAWKINS, A. J. HOLCOMBE, Mrs BRENDA HOLCOMBE, Z. J. KARPOWICZ, M. LORD, Mrs ISABEL McCULLOCH, Mrs DIANA MONK, P. J. MOORE, Mrs MARY OLIVER, J. O'SULLIVAN, Mrs ELIZABETH PEAL, Mrs J. PECKOVER, F. P. PENFOLD, Mrs J. POPE, A. J. PRATER, Mrs HELEN PRICE, Mrs DIANA RIDGLEY, G. H. ROBINSON, D. ROLLINSON, D. SALT, Miss S. L. SARGANT, Mrs E. A. SCOTT, Mr & Mrs G. H. SEARLE, Commander R. D. M. W. THOMAS-FERRAND, R.N., P. M. THOMPSON, Mrs HILARY TYE, Mrs C. E. WHEELER, P. J. WILKINSON and M. G. WILSON.

The seven hundred and sixty-third Meeting of the Club was held in the Senior Common Room, South Side, Imperial College, London S.W.7 on Tuesday, 21 January 1986, at 7 pm. The attendance was 19 Members and 6 guests.

Members present were: B. GRAY *(Chairman),* Mrs DIANA BRADLEY, D. R. CALDER, P. J. CONDER, R. F. COOMBER, J. A. DICK, D. J. FISHER, D. GRIFFIN, J. KING, Revd. G. K. McCULLOCH, Mrs AMBERLEY MOORE, Dr J. F. MONK, R. G. MORGAN, P. J. OLIVER, R. E. F. PEAL, S. A. H. STATHAM, A. R. TANNER, Dr E. H. D. WINCE and Lieut.-Colonel T. C. WHITE.

Guests present were: Dr R. J. CHANDLER, E. KIDD, Mrs M. MORGAN, P. J. MOORE, Mrs MARY OLIVER and V. SAWLE.

Dr R. J. Chandler spoke on "Bird photography and Waders". He showed a number of his slides of waders, including a series of Dunlin and of shorebirds of the east coast of North America, which were of outstanding quality and illustrated plumage characteristics by which they could be identified as to species and age.

The nest and eggs of *Circaetus cinerascens* and other snake eagles in Zambia

by J. F. R. Colebrook-Robjent and D. R. Aspinwall

Received 15 February 1985

A nest of the Western Banded Snake Eagle *Circaetus cinerascens,* originally discovered by D.R.A., was inspected by us on 16 January 1983, when it contained an egg. The nest site was at the edge of an acacia copse in a dambo (=shallow valley) on the Kado River, Kaoma District, Western Province, Zambia at 14°59′S, 25°16′E, altitude c. 1190 m asl. The dambo is broad, barely wet in the vicinity of the nest site, and down its centre the river runs through luxurious beds of phragmites, bullrush and watergrass *Cypsirus.* The copse, c. 100 m in length, consisted of *Acacia polycantha campylacantha* and one Msekese *Piliostigma thonningii* tree.

The nest tree was one of the acacia thorn trees, which was somewhat detached from and at one end of the copse. Vegetation at the base of the tree, and much of the undergrowth in the copse, consisted of a dense thicket of *Lantana.* This noxious weed grew thickly up the nest tree and was supported by another thorny creeper, possibly *Carissa edulis,* with red and black berries. The snake eagle's nest was at a height of 9.35 m up and c. 3 m below the crown of the canopy, the centre of the nest being 80 cm away from the main trunk. The nest was not placed on a branch but was entirely supported by matted and twisted stems of the two creepers. It was constructed of sticks, the largest up to 12 mm thick, but mostly narrower and less than pencil thick, i.e. 6 mm or less, decreasing in thickness towards the cup. The nest was oval shaped, measuring 79 and 59 cm in diameter, the depth being 25 cm. The small cup was 23 cm in diameter, rather deep (9 cm) and lined mainly with sprigs of broad leaves of Msekese, perhaps collected from the nearby specimen of this tree. The leaves were all dry except on one sprig which had evidently recently been added. But 3 other fresh sprigs were probably *Brachystegia longifolia,* which occurs in watershed Miombo woodland above the dambo. There was little or no excreta on either the foliage of the nest tree or on the ground below and only one piece of down, though there was one barred grey contour feather 14 cm long in the nest cup. One end of the oval of the nest faced outwards into an area that formed an open exit, the incubating eagle sitting lengthwise and facing this opening, through which it eventually flushed. The opening enabled the nest to be seen from one angle from below, though otherwise the surrounding canopy was somewhat dense, making the structure less easy to see from other viewpoints. Only the greyish top of the incubating bird's head could be seen from the ground, much noise and movement from us failing to disturb it. The eagle flushed noisily, however, when a weighted line was thrown up into the canopy, and it returned twice, going to sit nearby in full view as the nest was being examined.

The egg which the nest contained measured 67.3 x 53.7 mm, weighed 97.0 g and contained a small embryo (tarsus c. 7.5 mm), indicating that it was laid in the second half of December. In shape it is a regular, short oval. It is white, somewhat coarse-grained with a few not very prominent protuberances on the broad end, and is fairly well marked, with scrawls, spots and small blotches in a loose ring round the broad end, the larger blotches lilac-grey, the smaller spots and scrawls being medium-brown.

On our arrival in the area at noon, an adult Western Banded Snake Eagle was seen perched in a thorn tree not far from the nest. It was calling loudly, with wings and tail drooped, but soon flew and circled above the acacia copse, where it was joined by another but smaller adult. They circled and called, giving every appearance of a mated pair, and soared at leisure over the dambo and out of sight. But in the meantime, a third adult, the one described above, was incubating the egg.

Discussion

The present record refers apparently to only the second fully authenticated egg of *C. cinerascens* and the first for Zambia. The first known egg of this eagle was described by Benson (1947) from Malaŵi. He gave the measurements of his egg as 70 x 54 mm, but M. P. Walters remeasured this specimen recently, when it was found to be 70.6 x 54.9 mm (Steyn 1982). It was originally described as ". . . dull white . . ., irregularly smeared dull reddish or pale grey; interior very pale green". This description has been overlooked in recent works (e.g. Brown *et al.* 1982, Steyn 1982), and it must be said that Benson's egg is heavily nest-stained and dirty, and furthermore in a very fragile state. True pigment is no longer apparent (M. P. Walters). Brown *et al.* (1982) give the egg size of this species as 66 x 55 mm, evidently taken from Brown & Amadon (1968), the source of whose measurements is unknown to us. The comment "all old records require checking" [for identification] in Brown *et al.* is unwarranted with regard to Benson's egg, which is unquestioned, as the incubating bird was shot and preserved. Unaccountably, Benson's record was for many years apparently overlooked, though many obviously erroneous records have been repeated until recently. Both Brown *et al.* (1982) and Steyn (1982) ignore the record of a supposed egg of this species collected for R. Kreuger (1970), presumably because insufficient evidence was presented for such an unusual record. Though the egg of this species is so poorly known, and the nestling has yet to be described, nests have not infrequently been found, though seldom have been closely examined. Steyn (1982) illustrates a nest site and empty nest of *C. cinerascens* from the Luangwa Valley. Other nest sites briefly referred to by Steyn are from Kasane on the Chobe River (1) and in the Okavango Swamps (2), all 3 in Botswana. Benson & Benson (1977) refer to 2 nests in Malaŵi: the nest with an egg mentioned above from Karonga, and another nest recently found by D. B. Hanmer from Nchalo, where the birds were observed copulating in March, the nest being "occupied" in April. The nest was not closely examined, being in a creeper-covered branch of a Winter Thorn *Acacia albida.* No breeding records in Zambia could be given by Benson *et al.* (1971), but a number of nest sites have been found there since.

The following is a summary from various localities of breeding notes made by several observers and briefly given in the cyclostyled *Newsletter* of the Zambian Ornithological Society, 1971-82.

Calling from perches and displaying (i.e. calling and soaring singly or in pairs) may not always indicate breeding; it has been noted in January (Kitwe and Lusaka Rural), February (a vagrant pair in Choma), April (Chingola), July

(Mwombezhi, Sesheke and Zambezi), September (Luangwa Valley), October (Ndola), November (Isombu, Jivundu and Mwombezhi) and December (Livingstone, Nansenga and Ndola). Copulation was noted on 26 December 1981 at Chembe Bird Sanctuary, near Kitwe, but no nest was found. Noisy fledglings not associated with nests were recorded at Kafubu Stream, Ndola throughout October 1971 and in the same locality on 16 October 1978. All nests, other than the present record, have been found in the Luangwa Valley. One *C. cinerascens* there was seen to fly to a nest 10 m up in a well-creepered tree on the edge of a lagoon on 10 July 1975, only the edge of the nest being visible. An occupied nest in 1978 in an African Ebony *Diospyros mespiliformis* at Panza, South Luangwa National Park, was c. 9 m up in creepers. A new but empty nest at Chibembe in August and September 1979 was 15 m up in *D. mespiliformes* in thick creeper, and was 50 cm in diameter and 20 cm deep, with a lining of green leaves; eggs, however, were not, apparently, ever laid in it (P. Gurhs). At another site, at Old Mitofwe, North Luangwa National Park, on 18 September of the same year, *C. cinerascens* was seen sitting and calling on a nest 15 m up in an *A. albida* overhanging the Mfungwa stream (P. S. M. Berry). The nest was placed in a thicket of *Canthium zanzibaricum* intertwined in the Winter Thorn tree, but the contents (if any) were not ascertained. The same oberver had in a previous year noted one of these eagles frequently enter the upper canopy of a *D. mespiliformes* tree at Mfuwe. From the brief descriptions of these Luangwa Valley nests, all appear to be typical *Circaetus* structures, i.e. small and built of thin sticks, placed below the canopy, more or less well hidden in creepers, either in thorny acacias or in the evergreen *D. mespiliformes,* unlike the usual structures of *C. cinereus* and *C. pectoralis,* which are almost invariably built on the crown of a tree. It is possible that some Western Banded Snake Eagles may on occasion take over the large nest of some other bird of prey: the nest at Kasane, Botswana was described as about the size of a Wahlberg's Eagle's *Aquila wahlbergi* (Steyn 1982).

Though calling does not necessarily indicate the presence of either an egg or chick, it is frequent during nesting activity from the early stages of nest building until at least some time after the eggs have been laid (P. Guhrs, P. S. M. Berry, W. F. Bruce-Miller). That birds are seen sitting on nests does not necessarily indicate that eggs have been laid (P. Guhrs). What few reliable data are available suggest that *C. cinerascens* usually lays eggs from December to April in Central Africa, which is during the latter half of the rains. Laying dates for the other Zambian snake eagles are summarised in Table 1.

TABLE 1

Laying dates (months) of snake eagles in (A) Zambia (Benson *et al.* 1971) and (B) Southern Province, Zambia, 1970-1983 (J.F.R.C.-R.).

		J	F	M	A	M	J	J	A	S	O	N	D	Totals	
Terathopius ecaudatus	(A)	4	6	3	2	–	–	–	–	–	–	2	–	17	41
	(B)	6	10	4	1	1	–	1	–	–	–	–	1	24	
Circaetus cinereus	(B)	1	1	–	–	–	–	–	–	–	–	–	–	2	
C. pectoralis	(A)	–	–	–	–	2	4	–	–	–	–	–	2*	8	28
	(B)	–	–	2	6	2	2	4	3	1	–	–	–	20	

*It is reasonable to cast doubt on these 2 exceptional records, which may in reality refer to *C. cinereus.*

TABLE 2

Mean egg sizes and weights of Zambian snake eagles, together with wing measurements and weights from elsewhere in Africa.

Species	Egg size		Egg weight		Wing[1]		Weight[2]	
	mm	n	g	n	mm		g	n
Terathopius ecaudatus	79.3 x 63.2	(8)	155	(2)	530–559	(♀)	2242	(10)
Circaetus cinereus	76.8 x 61.2	(1)	149*	(1)	490–567	(♀)	2048	(26)
C. pectoralis	73.5 x 58.0	(11)	128	(3)	490–530	(♂♀)	1502	(46)
C. cinerascens	67.3 x 53.7	(1)	97	(1)	367–408	(♂♀)	–	

* water-filled egg weight
1 Brown *et al.* (1982)
2 Briggs *et al.* (1979)

The eggs of the larger species of snake eagles *(Terathopius ecaudatus, Circaetus cinereus, C. pectoralis* and *C. gallicus)* (Table 2) are in proportion to the size of the birds and are unmarked, white and rather coarse-grained.

According to Steyn (1982) some Bateleur's eggs have a few red marks, but any 'markings' on its eggs in Zambia have been due to nest-staining in every case (J.F.R.C.-R.). The eggs of *C. beaudouini* are unknown (Mackworth-Praed & Grant 1970). In contrast, it may be found that spotted eggs are typical in *C. cinarascens* and further records are desirable, as also a description of the eggs of the closely allied *C. fasciolatus.* Only one authentic egg of the latter has ever been collected, but it was never described and its present whereabouts are unknown (Steyn 1982).

It has been assumed that the 2 smaller banded snake eagles *C. cinarascens* and *C. fasciolatus* link the genus *Circaetus* to the Asiatic *Spilornis* serpent eagles (Brown & Amadon). There are some behavioural, besides morphological, similarities. According to Ali & Ripley (1968) the Crested Serpent Eagle *S. cheela* perches upright in trees of ravines, wooded streams and forest edge. It often occurs in pairs, soaring and calling noisily with aerobatic displays ". . . sometimes three birds thus engaged in some form of 'triangular' courtship" (p. 330), a situation resembling that at the *C. cinerascens* nest in Kaoma. The voice of *Spilornis* is apparently higher pitched than that of either of the banded snake eagles, but the food of the 2 groups is similar (Ali & Ripley 1968, Steyn 1982). The nest of the Asiatic serpent eagles is described as large, which is a point of difference, and the eggs of *Spilornis* are frequently handsomely marked. The egg described above of *C. cinerascens* may be likened to a poorly marked example of *S. cheela.* The clutch size of *Terathopius, Circaetus* and *Spilornis* is a single egg.

Acknowledgements: We thank P. S. M. Berry, W. F. Bruce-Miller, C. Carter and P. Guhrs for supplying field notes. M. P. Walters kindly measured the egg of *C. cinerascens* at the British Museum (Natural History), Tring, and drew our attention to C. W. Benson's note on this egg. Dr J. F. Monk improved a preliminary draft of this paper.

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Migrant and vagrant snipe on western Indian Ocean islands

by R. P. Prŷs-Jones & J. R. Wilson

Received 17 July 1985

Taylor (1984) has recently reviewed records of the Pintail Snipe *Gallinago stenura* in Africa, and has suggested that the species may well be a fairly regular visitor to east Africa in small numbers between late September and late February. This paper provides information on a specimen from Aldabra Atoll (9°24′S, 46°20′E) which supports the concept of trans Indian Ocean movements by *G. stenura,* and reviews the occurrence of migrant and vagrant Gallinagininae on western Indian Ocean islands. The only member of the subfamily known to breed in the region, *Gallinago macrodactyla,* is restricted to Madagascar (Milon *et al.* 1973).

PINTAIL SNIPE *Gallinago stenura*

A single moribund snipe was found by J.R.W. on 20 November 1973 at the Settlement, West Island, Aldabra. The emaciated bird, which was being mobbed by Pied Crows *Corvus albus,* weighed only 56 g, and had a wing length (flattened chord) of 131 mm, tail 54 mm, bill (exposed culmen) 56 mm, tarsus 35 mm (British Museum (Nat. Hist.) specimen reg. no. 1980.26.1, *per* G. S. Cowles). This is the first record of any snipe from Aldabra and the first confirmed record of *G. stenura* from anywhere within the Seychelles *(sensu lato).* Elsewhere in the western Indian Ocean the species is known only from Socotra, where 2 specimens were taken in winter 1898/99 (Ogilvie-Grant & Forbes 1903), and from the Maldives, where it is a not uncommon visitor between late September and mid February (Phillips & Sims 1958, Phillips 1963, Strickland & Jenner 1978), but very probably occurs more widely (see below).

SWINHOE'S SNIPE *Gallinago megala*

The sole record from the western Indian Ocean of this eastern Palaearctic breeding species is a male collected in December 1958 on Addu Atoll, Maldives (Phillips 1963). The species is unknown from Africa, normally wintering from India eastwards.

GREAT SNIPE *Gallinago media*

Sight records of single birds were claimed for the central Seychelles in October 1959 (Crook 1960), October 1972 and January 1973 (Feare & High 1977), but in no case was any description provided. A wisp of 8 snipe, seen in early April 1971 on Diego Garcia, Chagos, were ". . . almost certainly this species" according to Hutson (1975: 8); however, the brief description he provides fits either *G. stenura* or *G. megala* considerably better than *G. media* (P. A. R. Hockey, P. B. Taylor). Also on Diego Garcia, Howells (1983) subsequently recorded that on 18 occasions in 1982/83, dates unspecified, he saw groups of up to 4 snipe which he thought were *G. media. G. media* breeds in the western and central Palaearctic, and winters widely through the Afrotropics (Cramp & Simmons 1983), including Zanzibar on irregular occasions (Pakenham 1979).

COMMON SNIPE *Gallinago gallinago*

Included under this heading are birds referred to as "*G.* cf. *gallinago*", "*Gallinago* sp.", or just "snipe". The first record for the western Indian Ocean region appears to be that of Ogilvie-Grant & Forbes (1903) who found *G. gallinago* to be fairly common on Socotra in winter 1898/99, and shot numbers for eating. Gadow & Gardiner (1903: 371) found *G. gallinago* to be "extremely numerous" at Addu Atoll, Maldives, in April 1900 and obtained one or more specimens; their suggestion of breeding was based solely on second hand information, however, and should be disregarded unless confirmed. Also at Addu, Phillips (1963) collected 4 individuals and observed several more between mid December 1958 and late January 1959, and Strickland & Jenner (1978) refer to observations of the species in October and November 1975, further commenting that "snipe" are regular winter visitors from September till April. For the Chagos, Gardiner & Cooper (1907: 48) refer to observations of a few "snipe" on Diego Garcia in July 1905; this probably implies *G. gallinago* since a subsequent mention of "snipe" by these authors in the same paper (p. 154) is known to do so (see Gadow & Gardiner 1907). The record is noteworthy in being the only indication of the occurrence of snipe in the western Indian Ocean region outside the period September – April inclusive.

For the Seychelles, Gadow & Gardiner (1907) observed a small wisp of snipe, probably *G. gallinago,* on St Joseph Atoll, Amirantes, in mid October 1905, a reference overlooked both by Stoddart & Coe (1979) and Feare & Watson (1984). Loustou-Lalanne (1963: 17) wrote of *G. gallinago* as "Seen singly. Regular winter visitor." in the Seychelles *(sensu lato),* but Penny (1971: 556) doubted this on the grounds that *G. gallinago* ". . . is an inland species in Africa, and most unlikely even as a vagrant to the Seychelles". Subsequently, Feare & High (1977: 330) saw 2 or more snipe between late October 1972 and April 1973 in the central Seychelles which ". . . were smaller than *G. media,* and were presumably referable to *G. gallinago* . . . or, less likely, *G. stenura*". J.R.W. recorded *Gallinago* sp. on Mahé in November and December 1977 and on both Mahé and Praslin during the northern winter months of 1979, '80 and '81. They appeared to be regular in small numbers, normally occurring in the brackish back areas of *Avicennia* swamps and in rough grassland adjacent to the marshes. Occasionally they would venture out onto the coastal mud-flats close to the mouths of streams and, after heavy rain, were regularly seen on the flooded golf-course at Anse-aux-Pins, Mahé. Further south, in the Mascarenes, the only published record of a snipe is a single *Gallinago* sp. seen on Réunion in December 1979 (Barré 1983).

G. gallinago breeds throughout much of the Palaearctic and winters in Africa, Europe and southern Asia. Birds reaching the western Indian Ocean would almost certainly have come from central or eastern breeding Palaearctic populations, since ringing has shown that European birds only rarely reach the Afrotropics (Dhont & Van Hecke 1977, Fog 1978, Cramp & Simmons 1983).

JACK SNIPE *Limnocryptes minimus*

Feare & High (1977: 330) ascribe a "very small snipe" seen in early September 1973 on Bird Island, central Seychelles, to this species, but provide no further description. This is the sole western Indian Ocean record of a species which breeds in the north Palaearctic and winters widely through the Afrotropics north of the equator, the Middle East and India (Cramp & Simmons 1983).

Discussion

Excepting only *G. gallinago* and *G. megala* from the Maldives and *G. stenura* from the Maldives and Aldabra, all the above records from oceanic islands are based solely on field obervation. Nevertheless, despite the great difficulties that field identification of snipe pose, only Hutson (1975) supports his observation with a description, and his identification appears to be incorrect. We would suggest that all observations to date from Indian Ocean islands be accepted as demonstrating merely the occurrence of snipe, but not as defining the species involved. In particular, any assumption that an observation is *a priori* more likely to refer to *G. gallinago* than to *G. stenura* would appear untenable, since the records from the Maldives and Aldabra support Taylor's (1984) suggestion of trans Indian Ocean movements by *G. stenura.* J.R.W., who paid particular attention to the snipe he saw in the Seychelles, now considers that many of his records may well refer to *G. stenura* rather than *G. gallinago* (based on shorter bill length, lack of white on tail, relatively heavier barring on flanks, more subdued, lower call and flight pattern).

In conclusion, we would concur strongly with the comments of Feare & Watson (1984: 571) regarding both the need for more observations on migrants in the western Indian Ocean and the need for a publicized central register to which tourists and others can contribute their findings. In addition, we recommend that sight records submitted anywhere for publication should include full descriptions for species that are difficult to identify or locally rare.

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Further parallels between the Asian Bay Owl *Phodilus badius* and *Tyto* species

by D. R. Wells

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Stresemann & Stresemann (1966) have investigated moult pattern, Ford (1967) a range of mainly osteological evidence, Feduccia & Ferree (1978) the form of the bony stapes and de Boer (1984) karyotypes in the Asian Bay Owl *Phodilus badius* and all agree it is a tytonid, close to the 'monkey-faced' owls *Tyto.* Much of the structural evidence that has been produced in support of a formerly widely held, alternative view, that it is a strigid, is compromised by variation to be found between and even within accepted strigid genera, and is better interpreted as convergence. Thus the broad, steep-faced (versus narrow, tapered) skull of *P. badius* and most strigids relates to the mechanical support of proportionately large eyes and is likely to be a derived, adaptive character. Ford further points out that it is matched in one exceptional *Tyto* species, the Sooty Owl *T. tenebricosa* of Australasia. This bird, too, has eyes proportionately far larger than those of true barn and grass owls (Ford 1967; see also photographs in Fleay 1968). Like *P. badius, T. tenebricosa* lives mostly in the interior of evergreen or semi-evergreen forest where, as among nocturnal strigids, large eyes must help with the exceptionally dark night encountered beneath a closed, multi-layered tree canopy.

Perhaps not surprisingly, parallel behavioural evidence for a relationship has been more elusive; indeed, in Thailand, Marshall (1966) found that *P. badius* used apparently unique modes of perch-and-wait hunting and produced vocalisations without obvious homology in either of the recognised owl families. These characteristics are now well known also in Peninsular Malaysia, where the chief (and most spectacular) call of *P. badius* is a loud, almost musical wail of 3-4 notes, stressed on the second note and rounded off by up to 4 short, sharply upswept, tremulous phrases introduced at a successively lower pitch. Thorough reviews of the repertoire of the Common Barn Owl *Tyto alba,* both in Malaysia (G. M. Lenton) and elsewhere (Bunn *et al.* 1982), confirm Marshall's claim of complete lack of similarity to *P. badius* in all of its elements. On the other hand, no case can yet be made for assuming that *T. alba*'s vocalisations typify all members of the genus *Tyto,* since this familiar bird has forest-living relatives that rank among the world's least known owls – virtually in the category of the very rare *Phodilus prigogenei,* the central African supposed counterpart of *P. badius.*

Tyto tenebricosa is exceptional as the one forest-living *Tyto* about which at least something is known – and it is known to be more versatile vocally than *T. alba* (Fleay 1968). A recent tape-recording from Queensland includes a *'skree'* call of obvious Barn Owl affinity, together with a prolonged, down-sliding, whistling wail that is evocative of Bay Owl voice quality. The wail appears to be *T. tenebricosa*'s main loud vocalisation and it may have an advertising function (Fleay 1968, Slater 1971), since, unlike *T. alba,* Sooty Owls are stated to be strongly territorial. The more complex but likewise totally descending song of *P. badius* tends to be repeated in long bouts from regular points in a particular patch of habitat, and so may have a similar territorial function. That, of course, does not exclude the vocal characteristics developed for such a function from showing evolutionary convergence in these 2 species, adapted to some acoustic property of evergreen vegetation structure that their ranges, perhaps, have in common. Recordings of other forest *Tyto* species may eventually help to clarify this point.

Perhaps less easily compromised support for the systematic link between *Phodilus* and *Tyto* is provided by a unique observation of defence/threat behaviour, described here from my field notes on an adult *P. badius* freshly released after having been ringed at Pasoh research forest, 2° 59′N, 102° 18′E, Negeri Sembilan state, Malaysia. This bird, mist-netted after dark in the forest understorey where it had probably been hunting, was afterwards set down on a low stump a few feet from observers and within the lighted circle of a lamp, so that it may not have realised immediately that it was free to leave. Instead of escaping, it stood up on stretched legs, turned towards the observers and with forward-inclined body arched its wings out and down to below the level of its toes. Swaying from side to side in this stance it suddenly deeply bowed its head and shook it while facing more or less backwards between its own feet. After a few seconds with the uniform-coloured neck and nape thus presented, the head was flung up and forward again to expose a pale facial disc with enormous, widely staring black eyes and open bill. This sequence was repeated at least once before observers moved and the bird flew off unharmed.

Arching of the wings, which enhances the impression of size, is not confined to *Phodilus;* in various postures, often accompanied by plumage ruffling, it is a well known, widespread confrontation behaviour of owls. Associated rocking of the body from side to side, sometimes actually from one foot to the other, has also been described in several other genera, including *Tyto* (Fleay 1968, Bunn *et al.* 1982), *Bubo* (Mikkola 1983) and *Otus* (Thomas 1977). The bizarre head bowing and shaking component seems to be more restricted and has otherwise been reported only in *Tyto* – in the Common Barn Owl by Coward (1928) and by Bunn *et al.,* and in the Sooty Owl by Fleay (1968), who states that "like the Barn Owl [this bird] occasionally expresses emotion by bending its head to a position almost between its own feet, and slowly shaking it from side to side".

The mammal-like facial outline of tytonids, suddenly presented, is likely to be the factor that makes this peculiar behaviour disconcerting, and shape and behaviour could well have co-evolved. With broad, protrusible, dorso-lateral 'earflap' extensions of the ruff margin (Marshall 1966), *P. badius* may actually have achieved a more convincing civet or cat face simulation than *Tyto,* even though its ruff is less complete ventrally. At the same time, scarcity of records of head-bowing behaviour even in the well studied *T. alba* may, perhaps, be because this ruse is not ordinarily used against an intruder of large size. It is distinct from the hissing, forward-facing, snake-like head-weaving that *T. alba* always exhibits when cornered, for example in a nest chamber. Bunn *et al.,* nevertheless, do describe instances of the hissing/head weaving display being punctuated by head-bowing and D. K. Read points out that both behaviours could be elements of a bluff-and-escape syndrome that Common Barn Owls seem to substitute for the more aggressive attack response of many equivalent-sized strigids under threat. Asian Bay Owls are tree cavity nesters and it would be interesting to find out if they, too, also headweave and hiss rather than attack when cornered.

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Two additions to the avifauna of China, *Anas angustirostris* and *Hippolais pallida*

by W. G. Harvey

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On 18 June 1985 I identified 7 or 8 Marbled Teal *Anas angustirostris* at an artificial, brackish lagoon near the power station in the Karamay oilfield (c. 46°N, 85°E) in the Xinxiang Autonomous Region of China, within c. 300 km of the Kazakhstan border of the USSR. It is a desert region with sparse tamarisk scrub, but the environment has been dramatically transformed locally as a result of the need to store water for the town's population and for oil extraction processes. Spillage from the water pipeline is responsible for a 1 km^2 shallow lagoon, extensively fringed with *Phragmites* sp. reedswamp and *Salicornia* mudflats.

Excellent views were obtained of 3 of the teal, apparently a male with 2 females, the male head-bobbing and making occasional short rushes at the females, suggesting possible breeding. This record is apparently the first for China, although the species occurs in the steppe lakes of southern USSR.

Later I heard a familiar song coming from a small patch of tamarisk and located an Olivaceous Warbler *Hippolais pallida.* The species breeds in neighbouring parts of the USSR but this is apparently the first record for China. I located only one bird.

Detailed descriptions of both species are lodged with the Oriental Bird Club, Sandy, England and a more detailed account of my visit to Karamay is given in their publication, *Forktail* (Harvey, W. G. 1986 in press).

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Recent data on the distribution of birds in Guatemala

by P. W. Wendelken and R. F. Martin

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Information on the distribution of birds in Guatemala was summarized, updated and organized comprehensively by Land (1970), who indicated clearly that further field research on the subject would be desirable. From November 1981 to May 1982, from February to November 1984, and again from February to September 1985, all months inclusive, during studies of avian frugivory and plant dispersal in Guatemala's arid interior (Wendelken & Martin in press), we accumulated substantial amounts of new information on bird distribution throughout the country. Here, we present distributional data for 42 species. For 33 of these, we list 36 records from geographical regions in which the species previously had not been reported, namely: 26 for the Motagua Valley portion of the arid interior, 5 for northern Petén, 3 for the Caribbean lowland, and one each for the departments of Alta Verapaz and Baja Verapaz. We also clarify existing ambiguity concerning the eastern boundary of an unusual, but important Central American avian distributional zone formalized by Land (1962a, 1963, 1970). All records are based on observations made through 8 x 50 binoculars.

We can find no treatment of avian distribution in Guatemala subsequent to that of Land (1970). Our conclusions concerning the appropriateness of our records are based mainly on comparisons with Land's (1970) species accounts and range maps, together with earlier literature, including Land's papers on birds of the Motagua Valley portion of the arid interior (1962a), the Sierra de las Minas (1962b) and the Caribbean lowland (1963); we also have searched through the subsequent literature.

Land (1962a) reported 123 species from the arid interior of eastern Guatemala, of which 75 were resident. Based primarily on records from the Motagua River Valley and the plains about Salamá (Dpto. Baja Verpaz), Land's (1962a) data also included records from near Quiriguá (Dpto. Izabal). In a subsequent report on birds of the Caribbean lowland, Land (1963) characterized Quiriguá as "humid lower Motagua Valley", and later (1970), in a map of avian distributional areas, figured Quiriguá well within his Caribbean Lowland area. In reality, this seeming contradiction represents compromise; more xeric conditions exist a short distance W of Quiriguá, and the general area is one of transition. Here, we follow Land's 1963 and 1970 treatments, and consider records from Quiriguá to be from the Caribbean lowland. Land (1970) represented the Motagua Valley portion of the arid interior as his Tropical Zone, Arid Interior Geographical (Distributional) Area, and equated it with the Tropical Very Dry Forest Life Zone of Holdridge (1967); this is the region that forms our frame of reference for comparisons with Land's (1962a) data and which we term "tropical arid interior" in the following annotated list. All our records from this region are from sites on the floor of the Motagua Valley in the departments of El Progreso and Zacapa; unless qualified in the text, each represents the *f*irst *r*ecord for the species from the *t*ropical *a*rid *i*nterior and is annotated **FRTAI.** Records from other areas are noteworthy for reasons given within the appropriate species accounts.

Nomenclature and sequence follow the American Ornithologists' Union (1983) Checklist of North American Birds, 6th edition.

SPECIES ACCOUNTS

GREAT BLUE HERON *Ardea herodias*

9 March 1984, 2 seen along the Motagua River at the town Río Hondo, Dpto. Zacapa. **FRTAI.**

GREAT EGRET *Casmerodius albus*

8 March 1984, one seen (P.W.W.) along the Motagua R. at El Manzanal, Dpto. El Progreso, and another (P.W.W.) along the Motagua at Santa Cruz, Dpto. Zacapa, 4 June 1984. **FRTAI.**

LITTLE BLUE HERON *Egretta caerulea*

Recorded by Land (1962a) at Quiriguá (see back). One adult and 2 immatures seen along the Motagua R. at the town Río Hondo, Dpto. Zacapa, 10 March 1984. P.W.W. found an immature along the Motagua R. at Santa Cruz, Dpto. Zacapa, 24 July 1984. **FRTAI.**

CATTLE EGRET *Bubulcus ibis*

Very common resident of the Motagua R. Valley in Dptos. El Progreso and Zacapa, March–October 1984. **FRTAI.**

BLACK-BELLIED WHISTLING-DUCK *Dendrocygna autumnalis*

3 seen, 2 June 1984, and 2, next day, flying above the Motagua R. at Santa Cruz, Dpto. Zacapa. **FRTAI.** On 16 August 1984, 6 were seen from the bridge spanning the Río Dulce at Fronteras, Dpto. Izabal, the first records from the Caribbean lowland. Another was seen in the Caribbean lowland, 3 September 1984, at Quiriguá, Dpto. Izabal.

BLACK-SHOULDERED KITE *Elanus caeruleus*

Rare, possibly resident, in Guatemala; collected once in the volcanic highlands (Land 1970). P.W.W. sighted a single bird, 18 February 1984, a pair on 7 October 1984, and a pair on 11 August 1985 in the volcanic highlands, 5 km south of Antigua, Dpto. Sacatepéquez. On 10 March 1984, P.W.W. saw one individual at Santa Cruz, Dpto. Zacapa. **FRTAI.** P.W.W. found one, 9 March 1984, at Los Andes, and 2 on 3 September 1984 at Quiriguá, both Dpto. Izabal, the first records for the Caribbean lowland.

SNAIL KITE *Rostrhamus sociabilis*

Reported as rare and from only 2 locations in Guatemala (Land 1970). P.W.W. saw an adult female or immature bird perched and vocalizing at the edge of a large man-made pond, 13 March 1984, Santa Cruz, Dpto. Zacapa. **FRTAI.**

SHARP-SHINNED HAWK *Accipiter striatus*

P.W.W. saw one, 4 March 1984, 6 km west of El Rancho, Dpto. El Progreso. **FRTAI.**

SHORT-TAILED HAWK *Buteo brachyurus*

Land (1970) gave the only record from Guatemala as the single specimen from "Cobán", Dpto. Alta Verapaz, reported by Salvin & Godman (1900). P.W.W. twice saw soaring individuals in excellent light and at close range. The first was at San Juan Chamelco, 5 km SSE of Cobán, Dpto. Alta Verapaz, 23 March 1982. The other was seen, 19 August 1984, along the Río Dulce, between Fronteras and Livingston, Dpto. Izabal, soaring above mangroves in a manatee sanctuary (El Biotopo Chocón-Machacas para la Conservación del Manatí), the first record for the Caribbean lowland.

COLLARED PLOVER *Charadrius collaris*

Land (1962a) reported a single record from the arid interior, 23 August, Usumatlán, Dpto. Zacapa. P.W.W. saw 2 along the Motagua R.; one, 9 March 1984, at Río Hondo, Dpto. Zacapa; the other, 25 March 1984, et El Manzanal, Dpto. El Progreso.

SEMIPALMATED PLOVER *Charadrius semipalmatus*

On 25 March 1984, P.W.W. found 2 along the Motagua R. at El Manzanal, Dpto. El Progreso. **FRTAI.**

NORTHERN JACANA *Jacana spinosa*

On 15 April 1984, at close range, P.W.W. saw an individual fly into a marshy field at Santa Cruz, Dpto. Zacapa. **FRTAI.**

GREATER YELLOWLEGS *Tringa melanoleuca*

One seen, 9 March 1984 (P.W.W.), along the Motagua R. at Río Hondo, Dpto. Zacapa. **FRTAI.**

ROYAL TERN *Sterna maxima*

Listed as a rare transient and winter visitor to Guatemala (Land 1970). From the bridge spanning the Río Dulce at Fronteras, Dpto. Izabal, P.W.W. saw 21 individuals on 16 August 1984 and 8 next day, all flying. Also on 17 August 1984, he saw c. 30 at the mouth of the Río Dulce, Livingston, Dpto. Izabal.

MOURNING DOVE *Zenaida macroura*

A transient and winter visitor to Guatemala (Land 1970), recorded from 20 October to 31 May. Near Santa Cruz, Dpto. Zacapa, P.W.W. observed it through the summer of 1984 in heavily grazed, dry scrub forest. On 3, 6, 11, 19, 23, 24, 26, and 29 June 1984, 1-5 were seen, and 3 on 31 July 1984.

RUDDY GROUND-DOVE *Columbina talpacoti*

Not reported in the tropical arid interior by Land (1970), but presently a common resident of towns and roadsides there; we have numerous records March–October 1984, from Santa Cruz and Teculután, Dpto. Zacapa, and El Manzanal, Dpto. El Progreso. **FRTAI.**

BLACK-BILLED CUCKOO *Coccyzus erythropthalmus*

Land (1970) listed a single previous *summer* record from Guatemala: Dpto. Santa Rosa, 5 July 1963. On 2 June 1985, P.W.W. saw an adult in second-growth woodland at a wildlife sanctuary (El Biotopo Cerro Cahuí para la Conservación del Pavo del Petén), north shore of Lago Petén Itzá, Dpto. Petén, the first record for this department. P.W.W. observed an adult in dry scrub forest at Santa Cruz, Dpto. Zacapa, on 23 June 1984. **FRTAI.**

YELLOW-BILLED CUCKOO *Coccyzus americanus*

Listed as a transient, recorded in Guatemala, 5 September to 8 December, with no spring records (Land 1970). At Santa Cruz, Dpto. Zacapa, P.W.W. saw single birds 10 May and 19 June 1984, saw one and heard a second, both vocalizing, 26 July 1984, and heard another 31 July 1984. Single birds were seen, 22 and 25 May 1984, at El Manzanal, Dpto. El Progreso.

CHESTNUT-COLLARED SWIFT *Cypseloides rutilus*

One seen (P.W.W.), 21 May 1984, at close range (chestnut collar clearly visible), repeatedly, in a flock of swifts at a Quetzal sanctuary (El Biotopo Universitario para la Conservación del Quetzal), 5 km south of Purulhá, Baja Verapaz, the first record from the Verapaz highlands.

GREEN-BREASTED MANGO *Anthracothorax prevostii*

A single female seen by P.W.W., 8 and 10 March 1984, at Santa Cruz, Dpto. Zacapa. **FRTAI.**

BLACK-CRESTED COQUETTE *Lophornis helenae*

On 26 February 1984, P.W.W. observed an adult male at close range, both flying and perched, for c. 1 hr in "escobal" swamp forest on the road to Uaxactún, 4 km north of Tikal National Park headquarters (see map in Smithe & Paynter 1963), Dpto. Petén, the first record for Tikal National Park and for Dpto. Petén. He again saw an adult male at this site (photograph taken) on 27 February 1985.

RINGED KINGFISHER *Ceryle torquata*

Single birds seen 14 April, 27 May and 28 June 1984 along the Motagua R. near Santa Cruz, Dpto. Zacapa. On 11 and 15 July 1984, one was seen along the Motagua R. at the town Río Hondo, Dpto. Zacapa. **FRTAI.**

WEDGE-BILLED WOODCREEPER *Glyphorhynchus spirurus*

A single individual seen by P.W.W., 25 February 1984, at close range on the trunk of a tree within a forest on peaty soil, with hardwoods, palms, palmettos and rather thick undergrowth, 2 km SE of Tikal National Park headquarters, Dpto. Petén, the first record for the Park and for northern Dpto. Petén.

OLIVE-SIDED FLYCATCHER *Contopus borealis*

Listed as a transient and possible winter visitor in Guatemala, 26 August to 16 December, and 7 March to 15 May (Land 1970). P.W.W. saw single birds on the lower northern slopes of Volcán del Agua, 8 km south of Antigua, Dpto. Sacatepéquez, 28 January and 7 February 1982, 15 February 1984, and 10 February 1985.

EASTERN KINGBIRD *Tyrannus tyrannus.*

On 12 and 13 May 1984 groups of at least 6 birds were observed by P.W.W. at Santa Cruz, Dpto. Zacapa. **FRTAI.**

MANGROVE SWALLOW *Tachycineta albilinea*

Dates observed by P.W.W. (numbers seen in parentheses): the town Río Hondo, Dpto. Zacapa – March 9(5) and 10(1), June 25(14), July 11(33, including 3 immatures) and 15(5), all 1984; Santa Cruz, Dpto. Zacapa – May 13(2) and 24(1), June 5(4), 26(2), 29(1), July 9(5), 19(10), 24(10), 25(19), 26(3), 31(3), all 1984. The species clearly is resident in the tropical arid interior at this time. **FRTAI.**

BANK SWALLOW *Riparia riparia*

Listed as a rare transient in Guatemala, recorded from only 3 localities (Land 1970). P.W.W. saw 4 along the Motagua R. at Santa Cruz, Dpto. Zacapa, 12 May 1984; it was abundant there 13 May 1984. **FRTAI.**

CLIFF SWALLOW *Hirundo pyrrhonota*

Recorded in Guatemala only in autumn (Land 1970). P.W.W. found it numerous to abundant along the Motagua R. at Santa Cruz, Dpto. Zacapa, on 15 April and 12 and 13 May 1984.

BARN SWALLOW *Hirundo rustica*

Regarded as a transient and winter visitor, recorded in Guatemala September to April (Land 1970). On 8 and 12 May 1984 the species was numerous to abundant at Santa Cruz, Dpto. Zacapa, and a single individual was seen there by P.W.W., 28 June 1984.

VEERY *Catharus fuscescens*

According to Land (1970), the only record from Guatemala was that of Smithe (1966), who recorded it between 16 September and 16 October 1962. P.W.W. saw 2 on 7 and 8 May 1982 at Tikal National Park, Dpto. Petén.

SWAINSON'S THRUSH *Catharus ustulatus*

A transient and winter visitor in Guatemala, rare in the Petén (Land 1970). P.W.W. observed one clearly, 15 April 1984, at Santa Cruz, Dpto. Zacapa **(FRTAI)**, and found it abundant in Tikal National Park, Dpto. Petén, 8 and 9 May 1982.

BLUE-AND-WHITE MOCKINGBIRD *Melanotis hypoleucus*

Not recorded previously below 900 m in Guatemala (Land 1970). P.W.W. observed one individual in adult plumage at close range, 6 June 1984, in dry scrub forest at Santa Cruz, Dpto. Zacapa (elev. 219 m). **FRTAI.**

GOLDEN-WINGED WARBLER *Vermivora chrysoptera*

P.W.W. observed a single male at Tikal National Park, Dpto. Petén, 25 February 1984, the first record for both the Park and Dpto. Petén.

CHESTNUT-SIDED WARBLER *Dendroica pensylvanica*

Listed as a transient and winter visitor, recorded in Guatemala 27 September to 23 March (Land 1970). Sightings of single birds by P.W.W. at Tikal National Park, Dpto. Petén, in 1982, extend records to 7 and 8 May.

BAY-BREASTED WARBLER *Dendroica castanea*

The only previous definite record from Guatemala was that of Land (1963), who collected one specimen at Panzos, Alta Verapaz, 20 October 1958. P.W.W. observed 4 in Tikal National Park, Dpto. Petén, 7 May 1982, the first record from both the Park and Dpto. Petén.

SCRUB EUPHONIA *Euphonia affinis*

Seen by P.W.W. at Santa Cruz, Dpto. Zacapa in trees on the grounds of a motel and in trees and shrubs along a small stream, 27, 28, 30 June, and 2, 9, 17-19, 24, 26, 30 July 1984; 2-4 in adult male plumage were seen on all but 2 of these dates; 1-5 in female or juvenile plumage were seen on all days. A bird believed to be a fledgling was seen begging to a female 17 July 1984, and on 30 July 1984 a moulting juvenile male was seen. **FRTAI.**

YELLOW-WINGED TANAGER *Thraupis abbas*

P.W.W. saw 2 adults with 2 juveniles in trees on the grounds of a motel in Santa Cruz, Dpto. Zacapa, 30 July 1984. **FRTAI.**

GRAYISH SALTATOR *Saltator coerulescens*

Seen by P.W.W. on the grounds of a motel, and in trees and shrubs along a small stream in Santa Cruz, Dpto. Zacapa, 7 April, 26 and 27 June, and on 9, 16-19, 26, 31 July 1984; on all dates 1-2 adults and a possible juvenile were seen, except on 9 July, when a bird that clearly was a fledgling was observed. A nest containing nestlings was found, 16 July 1984, but on 17 July, the nest was absent. **FRTAI.**

BLACK-HEADED SALTATOR *Saltator atriceps*

On 30 July 1984, P.W.W. found one in tall trees bordering a large stream at Teculután, Dpto. Zacapa. **FRTAI.**

BLUE BUNTING *Cyanocompsa parellina*

On 15 April 1984, P.W.W. observed an adult pair near the Motagua R. at Santa Cruz, Dpto. Zacapa. **FRTAI.**

LINCOLN'S SPARROW *Melospiza lincolnii*

P.W.W. saw single birds on 14, 16, 23, 24 and 29 March 1982 at San Juan Chamelco, Dpto. Alta Verapaz, the first records from this department.

RED-WINGED BLACKBIRD *Agelaius phoeniceus*

P.W.W. saw 1-2 adult males displaying and singing in a marshy field near a large man-made pond, 7 and 15 April and 18 and 31 July 1984, Santa Cruz, Dpto. Zacapa; on 17 July 1984, he found 2 singing and displaying adult males and 2 females (or immatures) there. On 3 June 1984, he saw an adult male in dry scrub forest nearby. **FRTAI.**

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Range extensions for some Bolivian birds, 2 (Columbidae to Rhinocryptidae)

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We here continue our report on range extensions of birds in Bolivia on a departmental basis (see Remsen *et al.* 1985). Records published herein are based primarily on specimens housed at the Carnegie Museum of Natural History (CM), the Field Museum of Natural History (FMNH), the Museum of Zoology, Louisiana State University (LSUMZ), the Los Angeles County Museum (LACM), and the Delaware Museum of Natural History (DMNH). Departamentos are abbreviated throughout: Beni (BE), Chuquisaca (CH), Cochabamba (CO), La Paz (LP), Santa Cruz (SC) and Tarija (TA). All specimens collected in BE, CO, LP and SC were collected by F., R., or J. Steinbach unless mentioned otherwise. All specimens at the 2 localities west of Comarapa (see below), and all FMNH specimens from CH and TA were collected by Richard Crossin. All LACM specimens were collected by K. E. Stager or S. C. Bromley. All DMNH specimens were collected by C. Gregory Schmitt and Donna Cole Schmitt. Elevations and provinces are not given for localities listed in Paynter *et al.* (1975) or for the following frequently mentioned localities: Ixiamas, 221 m, Prov. Iturralde (LP); Chipiriri, 300 m, Prov. Chapare (CO); Mataracú, 400 m, Prov. Ichilo (SC); 28 km W Comarapa, 8400 ft, and 30 km W Comarapa, 8200 ft, Prov. Valle Grande (SC); and 108 km ENE Tarija, 6400 ft, Prov. Mendez (TA). Elevations for some localities in Paynter *et al.* (1975) are listed when these differ from those in the gazetteer or when multiple elevations are given in the gazetteer. Departmental records followed by an asterisk (*) are records for which Peters (1951) or Meyer de Schauensee (1966) listed the species for that department but for which we were unable to find a previously published record with locality and date.

Among the records reported here are the first for Bolivia of *Amazona xanthops* and *Coccyzus euleri.*

The 2 localities west of Comarapa are in an isolated tract of humid cloudforest ("Siberia") on the CO-SC boundary that is the southernmost known limit for this type of habitat; several species characteristic of mid-elevation cloudforest of the Andes reach their southernmost distributional limit there: *Coeligena violifer, Metallura tyrianthina, Aglaiocercus kingi, Pharomachrus auriceps, Veniliornis nigriceps* and *Margarornis squamiger.*

Several of the localities in Prov. Ichilo, northern SC, are at the extreme southern limit for many species typical of lowland Amazonian habitats. For example, the following 25 species reported here reach their southern or southwestern limit in South America in Prov. Ichilo: *Forpus sclateri, Brotogeris cyanoptera, Pionites leucogaster, Pionus menstruus, Opisthocomus hoazin, Ciccaba virgata, Hydropsalis climacocerca, Chloroceryle inda, C. aenea, Electron platyrhynchum, Baryphthengus martii, Nystalus striolatus, Veniliornis affinis, Automolus ochrolaemus, Xenops minutus, Sclerurus mexicanus, Myrmotherula brachyura, M. axillaris, M. menetriesii,* *Myrmoborus leucophrys, Hypocnemoides maculicauda, Hylophylax naevia, Myrmeciza hemimelaena, Phlegopsis nigromaculata* and *Hylopezus berlepschi* (and *Daptrius ater* and *D. americanus* in Remsen *et al.* 1985). Thus, a major faunal separation takes place in this area: the Amazonian avifauna of Prov. Ichilo is largely replaced by an avifauna typical of subtropical lowland South America in the next province to the south, Prov. Ibañez. Unfortunately, northeastern Dpto. Santa Cruz is undergoing massive deforestation for colonization projects, and so it is possible that many of these species will be extirpated from this region.

SPECIES ACCOUNTS

ROCK DOVE *Columba livia*

Feral populations probably exist throughout much of Bolivia. JVR has seen feral flocks in the vicinity of La Paz (LP) and in many locations in northern SC.

SPOT-WINGED PIGEON *Columba maculosa*

LP: Individuals and small groups seen regularly in Calacoto, adjacent to the city of La Paz (T. and J. Heindel, JVR).

PLAIN-BREASTED GROUND-DOVE *Columbina minuta*

SC: Buena Vista, 24 Apr 1917 and 29 Dec 1922 (CM 79129, 119813).

RUDDY GROUND-DOVE *Columbina talpacoti*

CO: Villa Tunari, Prov. Chapare, 23-30 Nov 1960 (LSUMZ 35756-58).

BARE-FACED GROUND-DOVE *Metriopelia ceciliae*

TA: 128 km SW Tarija, 8600 ft, 23-25 Jan 1973 (FMNH-C 25426-32).

GOLDEN-SPOTTED GROUND-DOVE *Metriopelia aymara*

LP: Desaguadero, 13 Feb 1922 (CM 94451-52, 119775); Camacho, 3850 m, Prov. Pacajes, 3 Oct and 24 Nov 1941 (FMNH 123761-63, 217643, C 15819-21; LSUMZ 37219): Esperanza, 4200 m, 15 & 17 Oct 1941 (FMNH 123764, C 15817); Finca Capiri, 12 km W Viacha, Prov. Ingavi, 1-3 July 1980, coll. by S. W. Cardiff and JVR (LSUMZ 95357, 95610-14).

BLUE-AND-YELLOW MACAW *Ara ararauna*

CO: Chipiriri, 8 Nov 1962 (LSUMZ 35769).

MILITARY MACAW *Ara militaris*

SC*: Río Surutú, 16 Feb 1923 (CM 119816): 16 km by road NW Masicuri, 1100 m, Prov. Vallegrande, 10 Jan 1984, coll. by C. G. Schmitt (LSUMZ 123497). **TA*:** Yacuiba, 27 Oct 1915, coll. J. Steinbach (CM 51742-43).

RED-AND-GREEN MACAW *Ara chloroptera*

CO: Yungas El Palmar, 22 June 1940 (FMNH 179056).

RED-FRONTED MACAW *Ara rubrogenys*

SC: El Palo, 20 July 1921 (CM 86176); this locality is very close to Cuesta La Negra. Previously known from SC in the literature only from Ridgely's (1981) sight records.

MITRED PARAKEET *Aratinga mitrata*

CO: Pocona, 2700 m, 1 Jan 1927 (CM 120230), 30 Dec 1936 to 1 Jan 1937 (FMNH 179088-91); Aiquile, 2150 m, 10 Aug 1936 (FMNH 179092-94).

WHITE-EYED PARAKEET *Aratinga leucophthalmus*

CH: 16 km N Monteagudo, 5000 ft, 24 Nov 1972 (FMNH 293585); C. G. Schmitt and D. C. Cole saw large flocks (up to 200) in agricultural areas near Carandayti, Prov. Luis Calvo, 10-11 May 1979.

MONK PARAKEET *Myiopsitta monachus*

SC: Guanacos, 21 Aug 1909 (CM 32949-51) and 27 Sep 1915 (CM 51544). **CH:** 30 km SE Carandayti, 10 July to 28 Aug 1957 (LACM 35464-69, 89141).

GREY-HEADED PARAKEET *Bolborhynchus aymara*

SC: Comarapa, 2500 m, 10 Sep 1926 (FMNH 179141), 7 Oct 1926 (CM 120167); 2.5 km N Tambo, Río San Isidro (Río Pulquina) Valley, 1500 m, Prov. Caballero, 25 June and 1 July 1984, coll. by C. G. Schmitt and JVR (LSUMZ 123521-23).

MOUNTAIN PARAKEET *Bolborhynchus aurifrons*

LP: Guaqui, 3 Feb, 4 Mar and 5 Apr 1922, coll. by J. Vasquez (CM 94428, 94493, 94707). Previously known from LP in the literature only from Niethammer's (1953) sight record.

DUSKY-BILLED PARROTLET *Forpus sclateri*

SC: Río Surutú, 15 Sep 1910 (CM 38445-46).

COBALT-WINGED PARAKEET *Brotogeris cyanoptera*

LP: Ixiamas, 18 Apr 1961 (LSUMZ 35783). **SC:** Nueva Moka, 6 June 1938 (CM 125060, FMNH 179194).

WHITE-BELLIED PARROT *Pionites leucogaster*

SC: Río Surutú, 11 Aug 1910 (CM 38342) and 12 Nov 1946 (LSUMZ 37275); 7 km N, 17 km W Buena Vista, 353 m, Prov. Ichilo, 27 Jan 1979 (DMNH 65408-10).

BLUE-HEADED PARROT *Pionus menstruus*

SC: Río Surutú, 9 specimens Mar-Aug 1916 & 1922 (CM); Buena Vista, 10 & 23 Feb 1943 and 25 May 1948 (LSUMZ 37276-78); 7 km N, 17 km W Buena Vista, 28 Jan 1979 (DMNH 65412).

YELLOW-FACED PARROT *Amazona xanthops*

BE: San Joaquin, 27 Mar 1964, coll. E. L. Tyson (Academy of Natural Sciences at Philadelphia #170759). This is a major range extension for this species, previously known only as far west as Coxim, Mato Grosso, Brazil (R. S. Ridgely).

TURQUOISE-FRONTED PARROT *Amazona aestiva*

CH: 30 km SE Carandayti, 6 July to 3 Nov 1957 (LACM 35452-55): C. G. Schmitt and D. C. Cole saw groups of 15-20 in areas around Tiguipa, 10-11 and 24 May 1979.

ORANGE-WINGED PARROT *Amazona amazonica*

BE: Río Mamoré, 25 Feb 1944 (LSUMZ 37281).

SCALY-NAPED PARROT *Amazona mercenaria*

SC: Río Blanco, Cerro Hosane, 11 & 28 Aug 1917 (CM 119379, 79468). Previously known in the literature from SC only from Parker & Rowlett's (1984) sight records.

YELLOW-BILLED CUCKOO *Coccyzus americanus*

CO: Cochabamba, 25 Feb 1954 (LSUMZ 37287): Todos Santos, 8 Mar 1956 (LSUMZ 37288). **SC:** Puerto Suarez, 3 Dec 1908 and 23 Jan 1909

(CM 31283, 31423); Buena Vista, 5 Nov 1914 (CM 50965), 10 Mar 1945, 20 Nov 1947 and 28 Dec 1951 (LSUMZ 35790-91, 37389); 8 km N Gutierrez, 3000 ft, 7-10 Mar 1973, coll. by R. Crossin (FMNH 293608-10): Santiago de Chiquitos, 700 m, 7 Mar 1973 (FMNH 295256).

PEARLY-BREASTED CUCKOO *Coccyzus euleri*

SC: "Cercado de Santa Cruz" = Andres Ibañez, 2 May 1915 (CM 51246). First record for Bolivia.

GREATER ANI *Crotophaga major*

SC: Puerto Suarez, 19 & 30 Jan 1909 (CM 31398, 31462-63); Buena Vista, 14 specimens, Nov-Jan, 1912-1952 (CM, FMNH, LSUMZ); Río Surutú, 300 m, Prov. Ichilo, 15 Sep 1938 (FMNH 179209-10); 7 km N, 17 km W Buena Vista, 353 m, Prov. Ichilo, 28 Jan 1979 (DMNH 65417).

SMOOTH-BILLED ANI *Crotophaga ani*

SC: Puerto Suarez, 19 & 30 Jan 1909 (CM 31398, 31462-63); Buena Vista, 21 specimens, 1910-1955 (CM, FMNH, LSUMZ); Río Yapacaní, 22 Dec 1936 (FMNH 179217); Santa Cruz, 450 m, 25 Apr 1937 (FMNH 179216); Santa Rita, 500 m, Prov. Cercado, 15 Dec 1961 (LSUMZ 35802); Angostura, 800 m, Prov. Florida, 18 June 1955 (LSUMZ 37303); 7 km N, 17 km W Buena Vista, 353 m, Prov. Ichilo, 25 Jan 1979 (DMNH 65418-21). Common throughout much of northern Dpto. Santa Cruz (C. G. and D. C. Schmitt, JVR sight). CH: 30 km SE Carandayti, 20-28 Oct 1957 (LACM 35472-75).

GUIRA CUCKOO *Guira guira*

CH: 30 km SE Carandayti, 11 July to 23 Aug 1957 (LACM 35478-81); 6 km SE Carandayti, 10 Nov 1957 (LACM 35477).

STRIPED CUCKOO *Tapera naevia*

CO: Incachaca, 2200 m, 20 Sep 1927 (FMNH 179226).

HOATZIN *Opisthocomus hoazin*

SC: Buena Vista, 8 Sep 1910 and 20 Jan 1926 (CM 38424, 120539), 30 June 1938 (FMNH 178802-04), 5 Feb 1945, 20 Mar 1964, and 30 June 1938 (LSUMZ 37141, 37143, 35691); Río Surutú, 12 Aug 1910 (CM 38347, 43767) and 15 Aug 1938 (FMNH 178799-801, 179803); Río Yapacaní, 22 Dec 1936 (FMNH 178805); 7 km N, 17 km W Buena Vista, 25 Jan 1979 (DMNH 66952-53).

TROPICAL SCREECH-OWL *Otus choliba*

LP: Coroico, 25 May 1979 (T. A. Parker and JVR, sight).

RUFESCENT SCREECH-OWL *Otus ingens*

CO: Alto Palmar, May, July and Nov, 1954, 1957 (LSUMZ 37319-20, 36890, 37314). This is the southernmost known locality for this species.

SPECTACLED OWL *Pulsatrix perspicillata*

CO: Chipiriri, 15 Oct 1964 (LSUMZ 35811).

FERRUGINOUS PYGMY-OWL *Glaucidium brasilianum*

CH: 70 km SE Padilla, 3600 ft, 18 Nov 1972 (FMNH 293619-20).

BURROWING OWL *Speotyto cunicularia*

SC: Santa Cruz de la Sierra, 7 & 8 July 1909 (CM 43605, 32818-19); Warnes, 10 Nov 1938 (FMNH 179239-41); Buena Vista, 2 Jan 1917, 30 Jan 1923, 28 May 1926 (CM 79100, 94671-72, 119932-33) and 28 May 1946 (LSUMZ 35814, 37332): Pampa de la Isla, 16 May 1918 (CM 80059-60); this latter locality is c. 10 km east of Santa Cruz de la Sierra.

MOTTLED OWL *Ciccaba virgata*

SC: Buena Vista, 8 Mar 1926 (CM 119927), 25 May 1928 (CM 120010) and 30 Sep 1942 (LSUMZ 37327); Río Surutú, 20 Nov 1946 (FMNH 217651).

STRIPED OWL *Rhinoptynx clamator*

SC: Buena Vista, 2 May 1922 (CM 119793), 5 Sep 1945 and 25 July 1947 (LSUMZ 35815, 37338); Río Surutú, 30 Apr 1911 (CM 43823), 9 July 1912 (CM 78801) and 20 Nov 1946 (LSUMZ 37339); "El Cuchi" (=Río Cuchi?, between Buena Vista and Warnes), 12 Dec 1922 (CM 119812); Santiago de Chiquitos, 7 Mar 1973 (FMNH 295274).

SHORT-EARED OWL *Asio flammeus*

CO: Cochabamba, 7 Oct 1920 (CM 85075). This is apparently the only specimen for Bolivia and is the basis for previous listings for Bolivia, although the locality and date have not been published previously.

OILBIRD *Steatornis caripensis*

CO: A colony exists in a cave in the Chapare region east of Cochabamba (G. Bejarano, sight record, late 1970's). This is the southernmost known locality for this species.

NACUNDA NIGHTHAWK *Podager nacunda*

CH: 30 km SE Carandayti, 28 Sep 1957 (LACM 35485); 18.2 km by road N Machareti, Prov. Luis Calvo, 11 May 1979 (DMNH 66952-53).

OCELLATED POORWILL *Nyctiphrynus ocellatus.*

SC: Río Surutú, 11 Aug 1910 (CM 38345, 43766).

BAND-WINGED NIGHTJAR *Caprimulgus longirostris*

SC: Comarapa, 10 Sep 1926 (CM 120134).

SPOT-TAILED NIGHTJAR *Caprimulgus maculicaudus*

SC: Buena Vista, 4 Dec 1909 (CM 43705). This is the southwesternmost known record for this species.

LITTLE NIGHTJAR *Caprimulgus parvulus*

CH: 15 and 30 km SE Carandayti, 2-14 Oct 1957 (LACM 35486-87, 35489, 35879-80).

LADDER-TAILED NIGHTJAR *Hydropsalis climacocerca*

CO: Yungas El Palmar, 15 Mar and 10 Apr 1940 (FMNH 179282-83); Alto Palmar, 10 Apr 1940 and 1 May 1960 (LSUMZ 37354, 36892). **SC:** Río Yapacaní, 22 Aug 1913, 26 Aug & 5 Sep 1914 (CM 44019, 50658-59, 50898).

SCISSOR-TAILED NIGHTJAR *Hydropsalis brasiliana*

SC: Buena Vista, 11 June 1915 (CM 51357), 15 June 1938 (FMNH 179280) and 18 May 1945 (LSUMZ 37358): Río Surutú, 18 Aug and 14 Oct 1938 (LSUMZ 37359, FMNH 179281); Monte de Basilio (near Basilio), 20 Sep 1915 (CM 51509); Río Grande, 21 June 1918 (CM 80493-96, 119492 [note that specimens labelled "Río Grande" by Steinbach are not from the Cochabamba locality listed by Paynter *et al.* (1975) but on the river directly east of Portachuelo]; Comarapa, 2500 m, 15 & 18 Sep 1926 (FMNH 179278-79); 2.5-3.8 km N Tambo, Río San Isidro (Río Pulquina) Valley, 1500-1525 m, 4 & 23 Feb 1984, coll. C. G. Schmitt (LSUMZ 123568-70); c. 3 km by road S, c. 3 km W Santiago de Chiquitos, 700 m, 16 July 1984, coll. by D. C. Schmitt (LSUMZ 123571). **CH:** 15 km SE Carandayti, 6 Sep 1957 (LACM 35488).

CHESTNUT-COLLARED SWIFT *Cypseloides rutilus*

LP: near Puente Villa, 24 km by road W Chulumani, 1650 m, 19 Apr 1980, coll. by J. Heindel (LSUMZ 95627).

WHITE-COLLARED SWIFT *Streptoprocne zonaris*

CO: Incachaca, 2225 m, 30 Nov 1927 (FMNH 179284); El Limbo, 2200 m, Prov. Chapare, 30 Mar 1938 (LSUMZ 37440). **SC:** Buena Vista, 9 specimens, Oct-Dec, 1912-1922 (CM). Previously known from SC in the literature only from Parker & Rowlett's (1984) sight records.

ASHY-TAILED SWIFT *Chaetura andrei*

TA: Yacuiba, 10 Feb 1916, coll. J. Steinbach (CM 119330).

ANDEAN SWIFT *Aeronautes andecolus*

CO: Tiraque, 15 Mar 1927 (CM 120280).

GREEN-FRONTED LANCEBILL *Doryfera ludoviciae*

CO: El Palmar, 600 m, 20 Nov 1948 (LSUMZ 37360). This is the southernmost known locality for this species.

GREEN VIOLETEAR *Colibri thalassinus*

SC: 30 km W Comarapa, 20-23 Dec 1972 (FMNH 293637-48).

WHITE-CHINNED SAPPHIRE *Hylocharis cyanus*

LP: Ixiamas, 20 Apr 1961 (LSUMZ 35843).

GILDED HUMMINGBIRD *Hylocharis chrysura.*

CH: 30 km SE Carandayti, 10 Sep 1957 (LACM 35436).

WHITE-TAILED GOLDENTHROAT *Polytmus guainumbi*

LP: Ixiamas, 11-12 Apr 1961 (LSUMZ 37391-93).

GIANT HUMMINGBIRD *Patagona gigas*

TA: 128 km SW Tarija, 8600 ft, 25 Jan 1973 (FMNH 293683).

VIOLET-THROATED STARFRONTLET *Coeligena violifer*

SC: 30 km W Comarapa, 18-24 Dec 1972; 28 km W Comarapa, 21-22 Mar 1973 (FMNH 293684-704).

BLUE-CAPPED PUFFLEG *Eriocnemis glaucopoides*

TA: 80 km S Tarija, 7000 ft, 11-13 Feb 1973; 108 km ENE Tarija, 25-27 Feb 1973; 67 km E Tarija, 7400 ft, 18 Feb 1973 (FMNH 293705-15).

TYRIAN METALTAIL *Metallura tyrianthina*

SC: 30 km W Comarapa, 14-23 Dec 1972; 28 km W Comarapa, 25 & 27 Mar 1973 (FMNH 293731-43).

LONG-TAILED SYLPH *Aglaiocercus kingi*

SC: 28 km W Comarapa, 24 Mar 1973 (FMNH 293744).

SLENDER-TAILED WOODSTAR *Microstilbon burmeisterii*

CO: Tin-Tin, 22 Dec 1937 (FMNH 179494). This is the northernmost known record for this species.

GOLDEN-HEADED QUETZAL *Pharomachrus auriceps*

SC: 30 km W Comarapa, 20 Dec 1972 (FMNH 293746).

RINGED KINGFISHER *Ceryle torquata*

CO: Chipiriri, 22 Nov & 6 Dec 1962 (LSUMZ 37457, 36888).

AMAZON KINGFISHER *Chloroceryle amazona*

CO: Chipiriri, 7 & 8 Dec 1962 (LSUMZ 35909, 37466).

GREEN KINGFISHER *Chloroceryle americana*

CO: Cochabamba, June 1920, coll. J. Vasquez (CM 119554); Pocona, 4

Dec 1926 (CM 120225). Listed for CO by Gyldenstolpe (1945) but without date, locality or museum source.

GREEN-AND-RUFOUS KINGFISHER *Chloroceryle inda*

SC: Buena Vista, 16 July 1938 and 20 Jan 1946 (LSUMZ 35912, 37463): Río Surutú, 8 Sep 1910 (CM 43796) and 10 Sep 1938 (FMNH 179543): Madrejón, 28 Oct 1946 (LSUMZ 37464).

LEAST KINGFISHER *Chloroceryle aenea*

CO: Todos Santos, 20 Apr 1956 (LSUMZ 35913). SC: Río Yapacaní, 26 Aug 1913 (CM 44049); Buena Vista, 8 Aug 1916 (CM 120225); Río Surutú, 10 Sep 1938 (FMNH 179544, LSUMZ 37465); Buena Vista, 10 Jan 1946 (LSUMZ 37466); Estancia Cachuela Esperanza, 21 Aug 1984, coll. N. Olds (LSUMZ 123380).

BROAD-BILLED MOTMOT *Electron platyrhynchum*

SC*: Río Surutú, 11 Aug 1910 (CM 38346); Buena Vista, 8 Dec 1912 (CM 43973); Mataracú, 420 m, Prov. Ichilo, 9 Aug & 30 Sep 1943 (FMNH 217699, LSUMZ 37471).

RUFOUS MOTMOT *Baryphthengus martii*

CO: Bajo Palmar, 600 m, 8 May 1940 (LSUMZ 37473). SC: Río Isamá, 20 May 1943 (LSUMZ 35916).

STRIOLATED PUFFBIRD *Nystalus striolatus*

CO: Todos Santos, 4 & 27 Mar 1956 (LSUMZ 37489, 35925). SC: Río Surutú, 28 Sep 1917 (CM 119412).

SPOT-BACKED PUFFBIRD *Nystalus maculatus*

CH: 30 km SE Carandayti, 3 Aug 1957 (LACM 35490).

LETTERED ARACARI *Pteroglossus inscriptus*

CO: San Rafael, 550 m, Prov. Chapare, 28 July 1957 (LSUMZ 35944, 37514). This is the southernmost known record for this species.

CURL-CRESTED ARACARI *Pteroglossus beauharnaesii*

CO: El Palmar, 14 Mar 1942 (FMNH 216094). This is the southernmost known record for this species.

RUFOUS-BREASTED PICULET *Picumnus rufiventris*

BE: Río Mamoré, 18 Feb 1944 (LSUMZ 35947); 10 km W San Antonio, 12 Aug 1965 (Amer. Mus. Nat. Hist. #819219).

WHITE-FRONTED WOODPECKER *Melanerpes cactorum*

CH: 30 km SE Carandayti, 10 Aug 1957 (LACM 35514-15). TA: Capirenda, 9 & 12 July 1957 (LACM 35516-17); 7 km NE Capirenda, 26 Aug 1957 (LACM 35518); 7 km NW Capirenda, 1 Aug 1957 (LACM 35519).

BAR-BELLIED WOODPECKER *Veniliornis nigriceps*

SC: 30 km W Comarapa, 18 Dec 1972 (FMNH 293799, 293801); 28 km W Comarapa, 27 Mar 1973 (FMNH 293800).

SMOKY-BROWN WOODPECKER *Veniliornis fumigatus*

TA: 108 km ENE Tarija, 25 Feb 1973 (FMNH 293791-92); 80 km S Tarija, 7000 ft, 13 Feb 1973 (FMNH 291793).

RED-STAINED WOODPECKER *Veniliornis affinis*

SC: Río Surutú, 28 Sep 1917 (CM 79680).

SPOT-BREASTED FLICKER *Colaptes punctigula*

CO: Villa Tunari, 400 m, Prov. Chapare, 3 Dec 1960 (LSUMZ 37528).

ANDEAN FLICKER *Colaptes rupicola*

SC: Los Negros, 810 m (an extremely low elevation for this species), Prov. Florida, 30 Apr 1961 (LSUMZ 37522).

BLACK-BODIED WOODPECKER *Dryocopus schulzi*

Short (1982) published the first occurrencies of this species in Bolivia. The details of these records are as follows (L. L. Short): **CH:** Monteagudo, 325 m, 13 May 1917 (Mus. Comp. Zool. #86762). **TA:** Villa Montes (Acad. Nat. Sci. Phil. #143343, 143345, and Univ. Mich. Mus. Zool. #107537).

LINEATED WOODPECKER *Dryocopus lineatus*

CH: 16 km N Monteagudo, 5000 ft, 25 Nov 1972 (FMNH 293787-88).

CREAM-BACKED WOODPECKER *Campephilus leucopogon*

CO: Tin-Tin, 22 Dec 1937 (FMNH 179740). This is the northernmost known record for this species.

GREAT RUFOUS WOODCREEPER *Xiphocolaptes major*

CH: 16 km N Monteagudo, 5000 ft, 26 Nov 1972 (FMNH 293812).

OCELLATED WOODCREEPER *Xiphorhynchus ocellatus*

SC: Río Surutú, 9 Aug 1910, 28 Mar 1916, 21 Sep 1917 (CM 43756, 78862, 79568) and 18 Aug 1938 (FMNH 179857-60); Río Yapacaní, 10 specimens (CM); Buena Vista, 28 Sep 1917 (CM 79681); Río Ichilo, 15 Feb 1937 (FMNH 179861); Cerro Hosane, 10 Aug 1917 (CM 79304); Río Blanco, Cerro Hosane, 12 & 14 Aug 1917 (CM 79334, 79355, 119381); Angostura, 800 m, Prov. Florida, 8 July 1955 (LSUMZ 35983); 13 km by road NW Masicurí, 1000 m, Prov. Vallegrande, 7-8 Jan 1984, coll. by C. G. and D. C. Schmitt (LSUMZ 123881-82); the latter locality is the southernmost known record for this species.

NARROW-BILLED WOODCREEPER *Lepidocolaptes angustirostris*

CH: 30 km SE Carandayti, 6 July to 8 Aug 1957 (LACM 35624-31); 70 km SE Padilla, 3600 ft, 20 Nov 1972 (FMNH 293835).

COMMON MINER *Geositta cunicularia*

CO: Vacas, 13 specimens, 1920-1938 (CM 81104-05, FMNH 179924-34); Cochabamba, 2750 m, 1920-1940 (CM, LSUMZ, FMNH); Tiraque, 3200 m, 29 Mar 1927 (FMNH 179938); Arani, 14 Feb 1927 (CM 120259).

SCALE-THROATED EARTHCREEPER *Upucerthia dumetaria*

CO: Vacas, 16 Aug 1937 (FMNH 180034); Colomi, 3075 m, 15 Apr 1942 (LSUMZ 37596).

BAR-WINGED CINCLODES *Cinclodes fuscus*

SC: Comarapa, 2500 m, 13 Oct 1926 (FMNH 180000).

WHITE-WINGED CINCLODES *Cinclodes atacamensis*

TA: 67 km E Tarija , 7400 ft, 16 Feb 1973 (FMNH 293840).

WREN-LIKE RUSHBIRD *Phleocryptes melanops*

CO: Vacas, 29 Nov 1921 (CM 86099, 119748) and 10 Feb 1927 (FMNH 180090).

PLAIN-MANTLED TIT-SPINETAIL *Leptasthenura aegithaloides*

CH: 27 km SE Camargo, 9600 ft, 5 Feb 1973 (FMNH 293842).

CABANIS' SPINETAIL *Synallaxis cabanisi fulviventris*

BE: Río Mamoré, 7 Feb 1944 (LSUMZ 37620).

CINEREOUS-BREASTED SPINETAIL *Synallaxis hypospodia*

SC: Pampas de la Isla, 17 May 1918 (CM 80064).

PALE-BREASTED SPINETAIL *Synallaxis albescens*

SC: Santa Cruz de la Sierra, 21 July 1909 (CM 32867); Buena Vista, June, Aug and Nov 1910-1918 (CM 43730, 51346, 79072, 80562) and 10 Jan 1946 (LSUMZ 37621); Río Yapacaní, 12 Sep 1914 (CM 50759); Palmarito, 24-27 May 1918 (CM 80194-95, 119462); Río Quizer, 9-17 June 1918 (CM 80394, 119481-82, 80422, 80470, 80475); Santiago de Chiquitos, 20 Apr & 3 May 1973 (FMNH 296139-40); Laguna Caucaya, 10 km by road E Gutierrez, 875 m, Prov. Cordillera, 23 Apr 1984, coll. C. G. and D. C. Schmitt (LSUMZ 124004); 2.5 km by road N, 8 km by road E Montero, 300 m, Prov. Santiesteban, 9 July 1984, coll. by C. G. Schmitt (LSUMZ 124003).

YELLOW-THROATED SPINETAIL *Certhiaxis cinnamomea*

SC: Buena Vista, 6 specimens, 1917-1946 (CM, FMNH, LSUMZ); Palmarito, 8 specimens, 22-29 May 1918 (CM); 70 km by road E Concepción, Prov. Ñuflo de Chavez, 3 August 1984, coll. C. G. Schmitt (LSUMZ 123222). **TA:** Capirenda, 15 Nov 1957 (LACM 35750).

LINE-FRONTED CANASTERO *Asthenes urubambensis*

CO: Incachaca, 13 Sep 1921 (CM 119704). This is the southernmost known record for this species.

STREAK-FRONTED THORNBIRD *Phacellodomus striaticeps*

SC: Pulquina, 1600 m, 24 Mar 1920 (CM 81074-75) and 15 May 1939 (FMNH 180290); Comarapa, 2500-2800 m, 12-25 Sep 1926 (FMNH 180286-89, 180291-95, CM 120146); 2.5 km N Tambo, Río San Isidro (Río Pulquina) Valley, 1500 m, 23 June 1984, coll. by JVR (LSUMZ 124074).

PEARLED TREERUNNER *Margarornis squamiger*

SC: 28 km W Comarapa, 21-24 Mar 1973; 30 km W Comarapa, 21-24 Dec 1972 (FMNH 293908-19).

BUFF-FRONTED FOLIAGE-GLEANER *Philydor rufus*

CH: 16 km N Monteagudo, 5000 ft, 26 Nov 1972 (FMNH 293964). This is the southwesternmost known record for this species.

BUFF-THROATED FOLIAGE-GLEANER *Automolus ochroleamus*

SC: Río Yapacaní, 4 Sep 1914 (CM 50708); Río Saguayo, Mar 1916 (CM 78846); Río Surutú, 12 Oct 1917 (CM 79822) and 31 Aug 1938 (FMNH 180367); Río Izama, Cerro Amboró, 19 Oct 1916 (CM 79031, 119360); Cerro Hosane, 7-8 Aug 1917 (CM 79273, 79278, 79270); Río Blanco, Cerro Hosane, 18 & 26 Aug 1917 (CM 79408, 79457).

PLAIN XENOPS *Xenops minutus*

SC: Río Yapacaní, 28 Jan 1915 (CM 51199); Río Surutú, 27 Sep & 12 Oct 1917 (CM 79653, 79820) and 27 Aug 1938 (FMNH 180372); Buena Vista, 4 Oct 1917 (CM 79688) and 6 May 1946 (LSUMZ 36061).

GREY-THROATED LEAFSCRAPER *Sclerurus albigularis*

SC: Río Surutú, 6 specimens, 1911-1938 (CM) and 15 Aug 1938 (LSUMZ 37661); Río Yapacaní, 21 May & 20 Sep 1914 (CM 50869, 50860); Cerro Hosane, 10-18 Aug 1917 (CM 79303, 79352, FMNH 258628); Río Blanco, Cerro Hosane, 18 Aug 1917 (CM 79398-99); Buena Vista, 15 Mar 1926 (CM 119925); Mataracú, 400 m, Prov. Ichilo, 20 June 1943 (LSUMZ 36063).

TAWNY-THROATED LEAFSCRAPER *Sclerurus mexicanus*

SC: Buena Vista, 11 July 1910 (CM 38310) and 15 Aug 1944 (LSUMZ

36062); Río Surutú, 8 Aug 1910 (CM 43752) and 16 Oct 1917 (CM 79864).

SHARP-TAILED STREAMCREEPER *Lochmias nematura*

TA: 108 km ENE Tarija, 26-27 Feb 1973 (FMNH 293968, 293972-73). These are the southernmost known records for this species in the Andes.

GIANT ANTSHRIKE *Batara cinera*

CH: 60 km SE Padilla, 4200 ft, 21 Nov 1972 (FMNH 293974).

GREAT ANTSHRIKE *Taraba major*

CH: 30 km SE Carandayti, 17 July to 10 Aug 1957 (LACM 35812-16); 35 km SW Carandayti, 17 Aug 1957 (LACM 35817).

PYGMY ANTWREN *Myrmotherula brachyura*

SC: Río Surutú, 6 & 9 Aug 1910 (CM 38322, 38331).

WHITE-FLANKED ANTWREN *Myrmotherula axillaris*

SC*: Buena Vista, 12 Apr 1927 (LSUMZ 37714); Río Ichilo, 30 Jan 1937 (FMNH 180494); Río Surutú, 20 Mar 1916 (CM 119338) and 16 Aug 1938 (FMNH 180492).

GREY ANTWREN *Myrmotherula menetriesii*

SC: Río Ichilo, 30 Jan 1937 (FMNH 180493, 180496); Río Surutú, 31 Aug 1938 (FMNH 180492).

RUFOUS-WINGED ANTWREN *Herpsilochmus rufimarginatus*

SC: Río Surutú, 22 Sep 1917 (CM 79579); Cerro Hosane, 22 Aug 1917 (CM 119389). These are the southwesternmost known records for this species. These specimens match closely a paratype of *H. r. flaviventris* Carriker and are quite different from *H. r. frater.*

BLACK-BELLIED ANTWREN *Formicivora melanogaster*

CH*: Machereti, 2 Oct 1915 (CM 51574-76).

MATO GROSSO ANTBIRD *Cercomacra melanaria*

SC: Buena Vista, 16 June 1924 (CM 119880) and 15 Aug 1942 (LSUMZ 37724); Isamá, 20 July 1943 (LSUMZ 37725); Santa Cruz de la Sierra, 11 May 1918 (CM 119442-3).

WHITE-BROWED ANTBIRD *Myrmoborus leucophrys*

SC: Río Surutú, 13 Sep 1910 (CM 43803, LSUMZ 37732), 14 June 1911 (CM 43865) and 6 Aug 1938 (CM 125076).

BAND-TAILED ANTBIRD *Hypocnemoides maculicauda*

LP: Ixiamas, 10 Apr 1961 (LSUMZ 36100). SC: Río Surutú, 9 Aug 1916 (CM 119353); Buena Vista, 12 & 15 July, 1938 and 1941 (LSUMZ 37740-41).

CHESTNUT-TAILED ANTBIRD *Myrmeciza hemimelaena*

SC*: Cerro Hosane, 9 & 25 Aug 1917 (CM 119376, 119394); Río Yapacaní, 22 Dec 1936 (FMNH 180542-43); Río Ichilo, 15 Feb 1937 (FMNH 180544); Buena Vista, 20 July 1927 and 20 June 1938 (FMNH 180545-46); Río Isamá, 17 May 1943 (LSUMZ 37743); Río Surutú, 28 Aug 1938 (LSUMZ 37745); Santa Rita, 500 m, Prov. Cercado, 8 Dec 1961 (LSUMZ 37744).

BLACK-SPOTTED BARE-EYE *Phlegopsis nigromaculata*

SC: Río Surutú, 6 specimens (CM 43824, 79596, 79725, 79799, 119497, 119784); Río Palacios, 26 June 1911 (CM 43888); Río Yapacani, 20 Aug 1913 (CM 44019-20), 27 Jan 1915 (CM 51182) and 17 Feb 1915

(CM 51138-39); Mataracú, 400 m, Prov. Ichilo, 19 June 1943 (LSUMZ 37760); Buena Vista, 26 Feb 1945 (FMNH 217713).

AMAZONIAN ANTPITTA *Hylopezus berlepschi*

SC: Buena Vista, 2 Mar 1924 (CM 119862), 13 Nov 1943 and 25 May 1948 (LSUMZ 37768, FMNH 217711).

SLATY GNATEATER *Conopophaga ardesiaca*

TA: Bermejo, 2 Nov 1919, coll. by J. Steinbach (CM 80655). This is the southernmost known record for this species.

OLIVE-CROWNED CRESCENTCHEST *Melanopareia maximiliani*

CO: Mollemolle, 22 Apr 1920 (CM 81258); Totora, 15 Nov 1926 (CM 120218). **TA:** 80 km S Tarija, 6400 ft, 14 Jan 1973 (FMNH 293995).

RUFOUS-VENTED TAPACULO *Scytalopus femoralis*

SC: Samaipata, 17 Mar and 16 Apr 1920 (LSUMZ 37773, CM 81006). This is the southernmost known record for this species.

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Collocalia linchi Horsfield & Moore – a revision

by S. Somadikarta

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Linchi, the Javanese name for a small cave dwelling "swallow" (Jansz 1906: 485, see *lintji),* was used by Horsfield (1822: 143) as the vernacular name for *Hirundo fuciphaga* (now *Collocalia fuciphaga)* of Java. In his description, however, Horsfield was clearly referring to a white-bellied swiftlet, and not to a sooty-brown one. Thirty-two years later, Horsfield & Moore (1854: 100) described the white-bellied swiftlet of Java as a new species *Collocalia linchi* and gave it the common name of Linchi Swallow.

Wallace (1863: 383), who described the morphological characters of all the then recorded species of *Collocalia,* pointed out that *C. linchi* Horsfield & Moore is similar to *C. esculenta* (Linnaeus). He noted further that there are white tail spots on the underparts of the rectrices in *C. esculenta,* but that *C. linchi* is plain-tailed. At the same time Wallace also specified that the distribution of these 2 species was restricted to the Indian and Australian regions. ''*C. linchi* extending from Java west-ward to the Nicobar Islands, while *C. esculenta* is found in Celebes and through the Moluccas to Timor and the shores of New Guinea.''.

Up to 1924, the plain-tailed white-bellied swiftlets inhabiting the Andaman and Nicobar Islands, the Malay Peninsula, Sumatra, Borneo, Java, Bali, Lombok and parts of the Philippines were designated as *C. linchi* and those with white tail spots as *C. esculenta* (Gray 1866: 199; Salvadori 1880: 540; Hume 1874: 157; Hume & Davison 1878: 49; Sharpe 1900: 90; Hartert 1892: 508, 1897: 69; McGregor & Worcester 1906: 59; Oberholser 1906: 204; Robinson 1907: 74; Stresemann 1912: 347; Neumann 1919: 109; Robinson & Kloss 1924: 275). The only white-bellied swiftlet with white tail spots assigned to *C. linchi,* was that from San Cristobal by Tristram (1879: 438).

In 1925 (p. 188), however, Stresemann considered that *linchi* was conspecific with *esculenta.* Since then *C. esculenta* has been applied to all the hitherto known white-bellied swiftlet populations, which extend from the Andaman and Nicobar Islands, the Mergui Archipelago, the southwestern part of Thailand, the Malay Peninsula, the Philippines through the Indo-Australian Archipelago to the northern tip of Australia, the Bismarck Archipelago, the Solomon Islands, the New Hebrides and to New Caledonia (Mayr 1931: 15; Hachisuka 1934: 182–183; Chasen 1935: 116; Peters 1940a: 229; Medway 1962: 147, 1966: 153; Morony *et al.* 1975: 51. Chasen & Kloss (1926: 283) and Riley (1929: 18), however, still named the plain-tailed white-bellied swiftlet from Sipora Island *C. linchi oberholseri.*

In 1940 (p. 393) Stresemann, on re-consideration, divided the *C. esculenta* population into 2 ''natural'' groups, i.e. the *esculenta* and the *linchi* groups, and stated that they are separated by a boundary which runs between Celebes and Mindanao, Celebes and Borneo, and then south to between Sumbawa and Lombok. He also pointed out that *C. esculenta natalis* of Christmas Island, which has white spots on the inner web of the lateral tail feathers, belongs to the ''eastern'' group. This statement suggests that the boundary, which I call **'Stresemann's line'**, extends further west between Christmas Island and Java (Fig. 1). Recently, Somadikarta (1968: 552, 1982: 18) named the green-glossed forms of Java as a full species designated *linchi.*

More than 1500 white-bellied swiftlet specimens have been examined, originating from different localities of their range, preserved in the museums listed in Acknowledgements. White spots on the inner web of the lateral tail feathers is a distinctive character for white-bellied swiftlets east and south of Stresemann's line; but this character is absent from specimens collected from the islands west and north of this line.

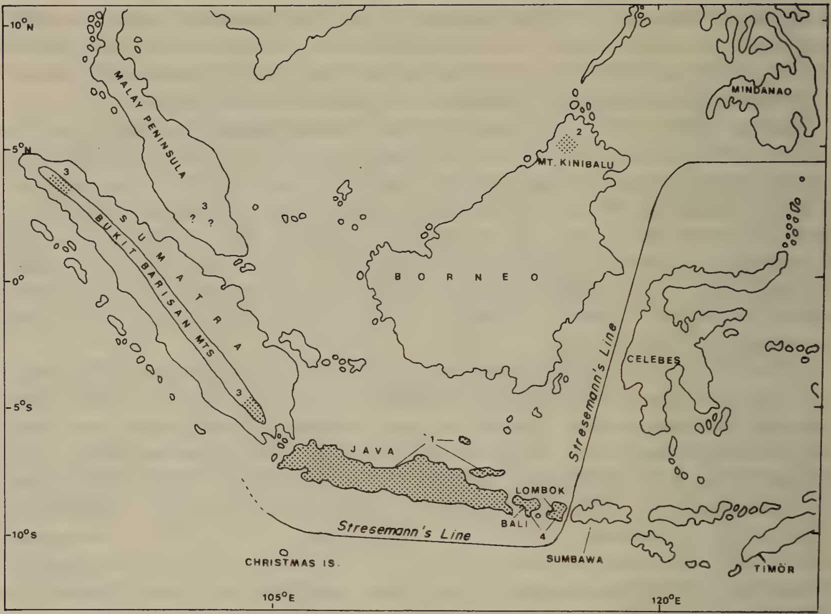

Figure 1. Geographical distribution of *Collocalia linchi:* 1. *C.l. linchi,* 2. *C. l. dodgei.* 3. *C.l. ripleyi* subsp. nov., 4. *C.l. dedii* subsp. nov.

The present study is confined to a discussion on the status of the plain-tailed white-bellied swiftlets inhabiting the islands west and north of Stresemann's line (excluding those of the Philippines), and proposes alterations in the nomenclature of *C. linchi.* Based on the colour of the plumage and on the presence or absence of the feather tuft on the hindtoe *(cf.* Rothschild & Hartert 1914: 294), it is clear that the plain-tailed white-bellied swiftlets of this subregion are represented by 2 distinct species, namely *C. linchi* and *C. esculenta.* I have not yet decided upon the relationship between the *esculenta* taxa without tail spots to the west and north of Stresemann's line and those with tail spots to the east and south. It should be noted, however, that *natalis* on Christmas Island and *neglecta* on Timor, both populations lying south and east of Stresemann's line, have greenish plumage (Gray 1866: 121; Hartert 1898: 460; Mayr 1944: 153; Voous 1964: 45–46) as in the Java population (Somadikarta 1982: 18).

C. linchi, the Linchi Swiftlet, is glossy *green* and the *hindtoe is naked.* The birds inhabit the west and the southwest slopes of Mt Kinabalu in Borneo and the Bukit Barisan mountain range in Sumatra. There is also one trade skin labelled Malacca in the Malay Peninsula (see later). On the islands of Java and Bali, the Linchi Swiftlet is found from the lowlands up to the top of the highest mountain (3000 m). *C. linchi* can also be expected at all altitudes on the islands of Madura, Bawean, Kangean, Nusa Penida and Lombok.

C. esculenta of this subregion is glossy *blue* and has a *feather tuft on the hindtoe.* The bird is found at all altitudes in Borneo, Malay Peninsula, Sumatra and their surrounding islands. The species, however, is absent from Java and the islands eastward to Lombok. This taxon is sympatric with the glossy green

C. linchi, with naked hindtoe, on the west side of Mt Kinabalu in Borneo and on the Bukit Barisan mountain range in Sumatra. If the origin of the trade specimen mentioned above is indeed correctly labelled as Malacca, this form has probably now become locally extinct on the Malay Peninsula, as there has been no subsequent report.

These specific data, on the morphological characters and on the geographical distribution, suggest that the swiftlet that is plain-tailed, glossy green, white-bellied and with naked hindtoe is *Collocalia linchi* Horsfield & Moore and should be treated as a distinct species. The alterations of its nomenclature, therefore, are proposed as follows:

Collocalia linchi linchi Horsfield & Moore

Collocalia linchi Horsfield & Moore, *Cat. Birds Mus. East Ind. Coy.* 1, 1854, p. 100: Java.

Hemiprocne fucivora Streubel, *Isis von Oken,* 1848, p. 369: Java.

Collocalia esculenta plesseni Meise, *J. Orn.* 89, 1941, p. 357: Nusa Penida Island.

Lectotype. BMNH 80.1.1.4619, sex not indicated, no date, Java, collected by Horsfield (ex Coll. Ind. Mus.).

Measurements of the lectotype (mm). Wing (chord) 94.0, tail 41.0, exposed culmen 3.5, tarsus not measured *(cf.* Somadikarta 1982: 19).

Specimens examined (incl. the lectotype). 263 specimens from Java, Madura, Bawean and Nusa Penida islands in the collections of AMNH, BMNH, MSNG, MZB, NMW, RMNH, USNM, ZMA, ZMB and ZRC.

Description. Dark upperparts glossed with green. Crown, primaries, rump and tail darker than the feathers of the back. Side of neck, chin, throat, breast and flanks dark grey (light brownish grey in specimens collected more than 15 years ago). Pronounced dark shafts of the broad white margins to the feathers of the abdomen. White spots on the inner web of the lateral tail feathers missing. Tarsus and hindtoe not feathered. The average wing and tail lengths (mm) are 94.50 and 41.48 respectively (Tables 1 & 2).

TABLE 1

Wing length of *Collocalia linchi* subspp.

Subspecies	n	$\bar{x}$	SD	CV
dodgei	3	88.67	1.04	1.17
ripleyi subsp. nov.	25	93.02	3.18	3.42
linchi	77	94.50	2.00	2.12
"plesseni"	12	92.92	1.70	1.83
dedii subsp. nov.	45	97.19	2.40	2.47

Range. Java, Madura, Bawean and Nusa Penida islands. Sight records from Kangean Islands (Vorderman 1893: 192; Hartert 1902: 435), Raas and Sapudi islands (Vorderman 1893: 207). Probably also inhabits the Karimunjawa Islands.

Remarks. Hemiprocne fucivora Streubel is not a Tree Swift as had been supposed, but a typical glossy green white-bellied swiftlet with a naked hindtoe as found in Java (Somadikarta 1982: 18). Both Gray (1866: 119) and Oberholser (1906: 204) doubtfully listed *Hemiprocne fucivora* Streubel 1848 as a synonym of *Collocalia linchi* Horsfield & Moore 1854, but the former name has never appeared in the literature since then. Accordingly, *Collocalia fucivora* (Streubel) may be regarded as a *nomen oblitum.*

TABLE 2

Tail length of *Collocalia linchi* subspp.

Subspecies	n	$\bar{x}$	SD	CV
dodgei	3	34.50	1.32	3.83
ripleyi subsp. nov.	25	38.24	1.60	4.18
linchi	58	41.48	1.45	3.50
"plesseni"	12	41.29	1.20	2.91
dedii subsp. nov.	40	44.25	1.33	3.01

Meise (1941: 317) reported that the type of *plesseni* was deposited in ZMB. It was an adult female collected from South Nusa Penida, 27 February 1938 by Baron V. von Plessen (original number, 487). The type specimen, however, could not be located in the collection of ZMB. I have examined 13 specimens (8 ♂♂, 5 ♀♀) all from Nusa Penida Island, 10 of which (6 ♂♂, 4 ♀♀) are paratypes. Both the colour of the plumage and the measurements of wing and tail are not sufficiently different to separate *plesseni* from *linchi*. Based on the data presented in Tables 1 & 2, the least significant difference *(lsd)* of unequally replicated means-computations for wing and tail mean length differences of *dodgei, ripleyi, linchi, "plesseni"* and *dedii* are significant at 1% level, except for:

(a) mean wing length difference *linchi* – *"plesseni"*, which is significant at 5% level, and

(b) mean tail length difference *linchi* – *"plesseni"*, which is not significant.

Collocalia linchi dodgei Richmond

Collocalia dodgei Richmond, *Smithsonian Misc. Coll. (Quart. Issue)* 47, 1905, p. 431: Mt Kinabalu, North Borneo.

Holotype. USNM 191575, sex not indicated, Mt Kinabalu, Borneo, early 1904, collected by George A. Goss & H. D. Dodge.

Measurements of the holotype (mm). Wing (chord) 87.5 (total primary moult score = 86, cf. Newton 1966: 43), tail 33.0, exposed culmen 3.5, tarsus 8.5. The measurements given in the original description are wing 90, tail 33 and tarsus 8.

Specimens examined (incl. the holotype). So far known from 3 specimens only, namely the holotype (USNM 191575), an adult ♀ (MCZ 197713) and an adult ♂ (MCZ 197714), all collected from Mt Kinabalu, North Borneo.

Description. Similar to the nominate race of Java, but the average wing and tail lengths (mm) much shorter, 88.67 and 34.50 respectively (cf. Tables 1 & 2).

Range. Confined to the higher altitude of Mt Kinabalu, North Borneo.

Remarks. Goss (cf. Richmond 1905: 432) in his field notes stated that the bird (the holotype) was found on the west side of the mountain. He further noted that the swiftlet was killed in flight and that it was the only individual of its kind they saw. Peters (1940b: 199) reported 2 other specimens of white-bellied swiftlet from Mt Kinabalu. These were glossy green with naked hindtoes (MCZ 197713 ♀, MCZ 197714 ♂) and had been collected at Tenompok (4900 ft) on the southwest of the mountain (cf. Coolidge 1940: 124) on 3 July 1937 by J. A. Griswold Jr. Specimens reported by Sharpe (1890: 23), on the other hand, and collected by J. Whitehead on 2 March 1877, also from the west side of Mt Kinabalu (cf. Sharpe 1889: 65), are glossy blue with feathered hindtoe, i.e. *C. esculenta.* In describing *C. dodgei,* Richmond (1905: 431) pointed out that Whitehead's 2 male specimens (AMNH 634600 & 634601) differ both in size and colour from the holotype. Smythies (1981: 190) considered that there are 2 races of white-bellied swiftlets in Borneo, namely *C. esculenta dodgei* on Mt Kinabalu and *C. esculenta cyanoptila* in the lowlands.

Collocalia linchi ripleyi subsp. nov.

Holotype. MZB 29415, ad. ♂, collected at Talangpadang (5°23'S, 104°48'E), alt. 240 m, South Lampung, southern part of Sumatra, on 1 October 1981, by S. Somadikarta (field no. 19).

Measurements of the holotype (mm). Wing (chord) 98.0 (total primary moult score = 96, cf. Newton 1966: 43), tail 39.0, exposed culmen 4.0, tarsus 9.0; weight 7.0 gr.

Specimens examined (incl. the holotype). Total 25. One unsexed, BMNH 56.3.12.11, Malacca (Malay Peninsula); ♀, ANSP 139336, Blangbeke, 7000 ft (north Sumatra); ♂, ANSP 139337, Leuser, 7900 ft (north Sumatra); 8 ♂♂ and 14 ♀♀, all MZB, Talangpadang, 240 m (south Sumatra).

Description. Similar to the nominate race of Java, but dark shaft to the feathers of the abdomen more pronounced, tail length much shorter. Average wing and tail lengths (mm) 93.02 and 38.24, respectively (cf. Tables 1 & 2).

Range. Sumatra (confined to the Bukit Barisan mountain range), and apparently at the higher altitudes in the Malay Peninsula.

Etymology. I take pleasure in naming this new subspecies in honour of **Dr S. Dillon Ripley** in recognition of his enormous contribution to the avifauna of Sumatra.

Remarks. Malay Peninsula. Specimen BMNH 56.3.12.11, a trade skin labelled Malacca, was purchased by the British Museum probably in 1856 from Maison Verreaux, one of the greatest emporia of natural history of the world at that time (Sharpe 1906: 503), and apparently the only specimen ever collected from the Malay Peninsula. It was not sexed, has a pronounced dark shaft on the white edges to the feathers of the abdomen and a relatively short tail, the 2 typical characters for this newly described subspecies. The measurements of this Malacca specimen (mm) are wing 96.5, tail 38.0, exposed culmen 3.5 and tarsus 9.0.

Sumatra. There are several reports of *C. linchi.* Robinson & Kloss (1918: 132) reported 2 specimens of "*C. linchi*" collected from the Bukit Barisan mountain range in West Sumatra. The BMNH specimen 1920.6.29.12, ♂, collected by HCR & CBK (field no. 2096) at Barong Bharu, Barisan Range, West Sumatra, 2°S at 4000 ft, on 7 June 1914 is *not* a Linchi Swiftlet. It is glossy blue, the feather tuft on the hindtoe is missing, apparently worn. I could not locate the second specimen recorded in the BMNH. In April 1939 the George Vanderbilt Sumatran Expedition 1936–1939 secured 10 specimens of white-bellied swiftlets, 2 of which (ANSP 139336 ♀, ANSP 139337 ♂) are the glossy green with a naked hindtoe Linchi Swiftlets; they were identified as *C. esculenta linchi* (Schauensee & Ripley 1940: 329). These birds were collected by S. D. Ripley at Blangbeke No. 1 (7000 ft) on 14 April 1939 and at Bivouac No. 5 on the trail to Leuser (7900 ft) on 28 April 1939, respectively. The remaining 8 Vanderbilt specimens (ANSP nos. 139339–45 & 168101) collected from Meloewak (2100 ft), Blangbeke Dua (3750 ft) and Berastagi (5000 ft) are glossy blue white-bellied swiftlets with feathered hindtoe assigned to *C. esculenta cyanoptila* (Schauensee & Ripley 1940: 330). Chasen (1935: 116), Peters (1940a: 229) and Delacour (1947: 142) doubtfully reported the occurrence of *C. esculenta linchi* in the southeastern part of Sumatra, but specimens of *linchi* from this area are not represented in the collections of any of the museums I visited. However, D. A. Holmes suggested that I should visit Talangpadang to identify the white-bellied swiftlets he saw there. On 1 October 1981, I was able to secure, by mist netting, 26 white-bellied swiftlets from a culvert near Talangpadang, south Lampung, southern Sumatra, at 240 m. Four specimens (2 ♂♂, 2 ♀♀) from this culvert were the glossy blue *C. esculenta* with a feathered hindtoe, and the rest (22 specimens: 8 ♂♂, 14 ♀♀) were the typical glossy green *C. linchi,* with a naked hindtoe.

Collocalia linchi dedii subsp. nov.

Holotype. MZB 28079, ad. ♂, Ubud (8°30′S, 115°16′E), Bali, 180 m alt, 15 April 1976, collected by S. Somadikarta (field no. 28).

Measurements of the holotype (mm). Wing (chord) 99.0, tail 45.0, exposed culmen 4.5, tarsus 9.5; weight 6.0 gr.

Specimens examined (incl. the holotype). 60 specimens: from Bali (31 ♂♂, 26 ♀♀, 1 unsexed) in AMNH, MZB & RMNH, and 2 ♂♂ from Lombok in AMNH.

Description. Similar to the nominate race of Java, but the colour of the side of neck, chin, throat, breast, and flanks is blackish grey. The measurements of wing and tail are the longest of any *C. linchi.* The average wing and tail lengths (mm) are 97.19 and 44.25 respectively (cf. Tables 1 & 2).

Range. Bali and Lombok islands.

Etymology. Named after my beloved son **Dedi Ahadiat Somadikarta,** who had shown much interest in ornithology since his childhood. I had discussed the present paper with him, before his untimely death at the age of 24 on 18 January 1985.

Acknowledgements: Specimens examined for this study are preserved in the collections of the following museums: AMNH = The American Museum of Natural History, New York; ANM = The Australian National Museum, Sydney, NSW; ANSP = The Academy of Natural Sciences of Philadelphia, PA, USA; BMNH = The British Museum Natural History, Tring, UK; FMNH = The Field Museum of Natural History, Chicago, IL; MCZ = The Museum of Comparative Zoology, Harvard University, Cambridge, MA, USA; MSNG = Museo Civico di Storia Naturale ''Giacomo Doria'', Genoa; MZB = Museum Zoologicum Bogoriense, Bogor, Indonesia; NMM = The National Museum, Manila, The Philippines: NMW = Naturhistorisches Museum in Wien, Austria; RMNH = Rijksmuseum van Natuurlijke Historie, Leiden, The Netherlands; USNM = The United States National Museum, Smithsonian Institution, Washington, DC; YPM = The Yale Peabody Museum, Yale University, New Haven, CT; ZMA = Zoological Museum Amsterdam, The Netherlands; ZMB = Zoologisches Museum Berlin, East Germany; ZRC = The Zoological Reference Collection, The National University of Singapore.

I am deeply grateful to officials of these institutions, who kindly allowed me to study the specimens in the collections in their charge. I particularly wish to thank Mrs Mary LeCroy for much help in submitting additional data from specimens housed in AMNH. I am also indebted to Dr Barizi for statistical advice, to Mr D. A. Holmes and Dr D. M. Keith-Lucas for advising and commenting upon the manuscript. Grants from the Australian Academy of Science, the British

Council, the Frank M. Chapman Memorial Fund, the University of Indonesia, the Yayasan Soemantri Brodjonegoro and the Yayasan Supersemar are gratefully acknowledged. This study on the taxonomy of the swiftlets has been partially carried out during my tenure as US National Research Council Visiting Research Associate at the Division of Birds of the Smithsonian Institution, Washington, DC, USA.

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Books Received

Gallagher, M. & Woodcock, M. W. 1985. *The Birds of Oman.* Quartet Books. Hard covers. No price given.

The original 1980 work reprinted to the same high standard, the whole edition in Arabic.

Seebohm, Henry. 1985. *The Birds of Siberia.* 2 vols: 'To the Petchora Valley' and 'The Yenesei'. Total Pp. 504. Alan Sutton: Gloucester. 17 x 11 cm. £2.95 each volume, paperback.

An inexpensive reprint of Seebohm's classic (1901) work of the 1870's in 2 small volumes, including the original engravings at the head and tail of each chapter, fairly satisfactorily reproduced, which cannot be said of the map in the review copies, although this and the index have sensibly been printed in both volumes. To the modern generation, the obsessive collecting and the lack of field identification skill must be horrendous; but the narrative remains absorbing.

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Papers, from Club Members or non-members, should be sent to the Editor, Dr J. F. Monk, The Glebe Cottage, Goring, Reading RG8 9AP, and are accepted on the understanding that they are offered solely to the *Bulletin.* They should be typed on one side of the paper, with double-spacing and a wide margin, and submitted with a *duplicate copy on airmail paper.* Scientific nomenclature and the style and lay-out of papers and of References should conform with usage in this or recent issues of the *Bulletin.* Informants of unpublished observations should be cited by initials and name only, e.g. "... catches wasps (B. Eater)", but "B.B.C. Gull informs me that ...". Photographic illustrations, although welcome, can only be accepted if the contributor is willing to pay for their reproduction. Authors are requested to give their title, initials, name and full address (in the form they wish to be corresponded with) at the end of the paper.

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The *Bulletin* is now being sent by Bulk Air Mail to all European destinations outside the British Isles and by Accelerated Surface Post to almost every destination outside Europe. This will only apply to copies despatched from the printers on publication. Those whose subscriptions have not been received by the beginning of a month of publication will have their copies despatched by surface mail, after their current subscription has been paid.

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Edited by

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FORTHCOMING MEETINGS

Tuesday, 22 July 1986 at 6.20 pm for 7 pm in the Senior Common Room, **SHERFIELD BUILDING**, Imperial College, S.W.7, **Dr Alan Tye** will speak on **Birds in Sierra Leone.** Those wishing to attend should send their acceptance with a cheque for £5.30 a person to reach the Hon. Secretary at 2 Chestnut Lane, Sevenoaks, Kent TN13 3AR by first post on 8 July, if possible*.

Dr Tye, of the Nature Conservancy, is lately Lecturer in Zoology at the University of Sierra Leone and has an extensive knowledge of the avifauna of that part of West Africa.

The Sherfield Building is in the main block of Imperial College, on the west of Exhibition Road, roughly midway between the Natural History Museum and Albert Hall. The Senior Common Room is on level 2.

Tuesday, 23 September 1986 at 6.20 pm for 7 pm in the Senior Common Room, **SHERFIELD BUILDING**, Imperial College, S.W.7, **Dr W. R. P. Bourne** will speak on **Birds of Sub-antarctic Islands.** Those wishing to attend should send their acceptance with a cheque for £5.30 a person to reach the **HON. TREASURER AT 53 OSTERLEY ROAD, ISLEWORTH, MIDDLESEX TW7 4PW** by first post on 9 September, if possible.*

It is sufficient to mention Dr Bourne's renown as an eminent authority on oceanic islands and their birds.

Directions for reaching the Sherfield Building are given above.

Tuesday, 18 November 1986 at 6 pm at the British Museum (Natural History), Cromwell Road, **Mr J. H. R. Boswall** will show films **A Paradise for Birds,** made in the southern Chinese province of Yunnan, and **The Azure-winged Magpie,** made in the eastern province of Shandong by Xu Zhen, for whom it won in 1984 the Golden Rooster Award. Supper at Imperial College will follow, after which Mr Boswall will speak on **"Ornithology in China – a rambling but reasonably accurate excursion into birds in the People's Republic."**

*It will be possible to take acceptances up to the weekend before the Meeting, but Members are asked to accept by 14 days before the Meeting, if they possibly can, to avoid a substantial number of late acceptances, as we have to notify approximate numbers 14 days before a Meeting.

COMMITTEE

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BRITISH ORNITHOLOGISTS' CLUB

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ANNUAL GENERAL MEETING

The Annual General Meeting of the British Ornithologists' Club was held at The Snooker Centre, 121 Holborn, London, E.C.1 at 6 pm on Tuesday, 13 May 1986 with Mr B. Gray in the Chair.

The Minutes of the Annual General Meeting held on 21 May and 2 July 1985 *(Bull. Brit. Orn. Cl.* 105: 42, 81–82) were approved and signed by the Chairman.

On the proposal of Mr J. H. Elgood, seconded by Revd. G. K. McCulloch, the Report of the Committee for 1985 was unanimously received and adopted. The Hon. Treasurer presented the Accounts for 1985 and on the proposal of Mr R. E. Scott, seconded by Mr R. F. Coomber, they were unanimously received and adopted.

The Editor reported that suitable papers were being received at a very satisfactory rate.

There being no additional nominations, the following were declared duly elected:

Chairman:	The Revd. G. K. McCulloch, O.B.E. (*vice* Mr B. Gray).
Vice-Chairman:	Mr D. Griffin, M.A. (*vice* The Revd. G. K. McCulloch).
Hon. Treasurer:	Mrs D. M. Bradley (re-elected).
Hon. Secretary:	Mr R. E. F. Peal (re-elected).
Committee:	Mr J. H. Elgood, M.A. and Mr N. H. F. Stone (*vice* Mr D. Griffin and Mr S. A. H. Statham).

After a vote of thanks to the retiring Chairman, the Meeting closed at 6.10 pm.

The seven hundred and sixty-fourth Meeting of the Club was held in the Senior Common Room, Sherfield Building, Imperial College, London S.W.7 on Tuesday, 4 March 1986, at 7.20 pm. The attendance was 21 Members and 17 guests.

Members present were: B. GRAY *(Chairman),* P. J. BELMAN, D. R. CALDER, S. J. W. COLES, R. F. COOMBER, R. M. G. EDEN, D. J. FISHER, A. GIBBS, A. J. HOLCOMBE, R. H. KETTLE, A. J. KENCH, Revd. G. K. McCULLOCH, Mrs AMBERLEY MOORE, Mrs M. N. MULLER, R. E. F. PEAL, R. E. SCOTT, R. E. SHARLAND, N. H. F. STONE, D. TUTT, Dr A. TYE and J. J. WHEATLEY.

Guests present were: Miss SHEILA ATTENBOROUGH, Mrs ZENA BALLARD, Ms KAREN M. DEVINE, Mrs S. M. EDEN, Mrs B. GIBBS, Miss C. GOTTLUND, M. J. D. HIRONS, Mrs BRENDA HOLCOMBE, Miss E. McCULLOCH, G. P. McCULLOCH, Mrs ISABEL McCULLOCH, Mrs J. M. McCULLOCH, T. MILLS, P. J. MOORE, Mrs BETTY PEAL, Mrs G. A. SCOTT and Mrs HILARY TYE.

Mr A. J. Holcombe spoke on ''An introduction to Kenya birds''. He described notable bird habitats in Kenya and showed excellent slides depicting a large number of the bird species there.

Income and Expenditure Account for the year ended 31st December 1985

	1985 £	1985 £	1984 £	1984 £
INCOME				
Subscriptions Received				
Members Subscriptions	2,306		2,619	
Subscribers	1,769	4,705	3,212	5,831
Donations Received		14		6
Investment Income				
Stevens Bequest Fund	153		153	
Deposit Interest	2,407		1,611	
Barrington Trust Fund	48	2,608	48	1,812
Rent Received				
Property "Clovelly", Tring	1,823		1,686	
Less: Costs	1,458	365	64	1,622
Income Tax Recovered				
Deeds of Covenant	212		212	
Other	65	277	65	277
Sales of Bulletin—Back Numbers		1,191		983
		8,530		10,531
Meetings—Income	1,482		1,180	
Expenditure	1,606	(124)	1,230	(50)
		8,406		10,481
EXPENDITURE				
Printing and publication of Bulletin	5,024		4,402	
Separates	416		417	
	5,440		4,819	
Less: Author's costs	320		98	
	5,120		4,721	
Postage of Bulletin	489		891	
	5,609		5,612	
Publication and Distribution Costs re Current Issues of Bulletin				
Publicity Expenditure	—		206	
Printing, Postage and Stationery	392		359	
Telephone	51		32	
Insurance	25		43	
Notices of Meeting	102		78	
Audit and Accountancy Charges	100		90	
Miscellaneous Expenditure	70		54	
Bank Charges	4	6,353	—	6,474
Excess of Income over Expenditure		£2,053		£4,007

Balance Sheet as at 31st December 1985

	1985 £	1985 £	1984 £	1984 £
General Fund				
Balance at 31st December 1984	16,885		12,878	
Add: Excess of Income over Expenditure	2,053	18,938	4,007	16,885
Trust Fund—F. J. F. Barrington Legacy				
Balance at 31st December 1984		445		445
Stevens Bequest Fund				
Balance at 31st December 1984	2,256		2,256	
Add: Transfer of Freehold Property	58,000	60,256	—	2,256
		£79,639		£19,586
Represented by:—				
Stevens Bequest Fund Investment				
£2,101 10.25% Exchequer Stock 1985 at cost		2,019		2,019
Barrington Trust Fund Investment				
£880 5.5% Treasury Stock 2008/12 at cost		445		445
Freehold Property		58,000		—
		60,464		2,464
Current Assets				
Stock of Bulletin—Nominal Value	1		1	
Cash at Banks—Current Account	178		368	
Post Office Giro Account	577		757	
Deposit Account	6,266		5,061	
National Savings Bank	15,804		13,348	
	22,826		19,535	
Current Liabilities				
Subscriptions received in advance—Members	424		467	
Subscribers	1,073		343	
Sundry Creditors	2,154		1,603	
	3,651	19,175	2,413	17,122
		£79,639		£19,586

Accountants' Certificate

We have prepared the attached Balance Sheet and Income and Expenditure Account from the books, vouchers and information presented to us and certify that they are in accordance therewith.

Hereford House, Hereford Gardens,
Pinner, Middlesex HA5 5JR 28th April 1986

SEARLE AND COMPANY
Chartered Accountants

We approve the attached Balance Sheet and Income and Expenditure Account for the year ended 31st December 1985 and confirm that to the best of our knowledge all transactions relating to the Club have been recorded.

B. GRAY *Chairman*
DIANA BRADLEY *Treasurer*

13th May 1986

Geographical variation and taxonomy of the Dunlin *Calidris alpina* (L.).

by Julian G. Greenwood

Received 8 October 1985

This study examines in detail morphometric variation in the Dunlin *Calidris alpina* throughout its breeding range, with a view to determining the extent of geographical variation, considers the evolutionary history of the various populations, and discusses the taxonomic implications.

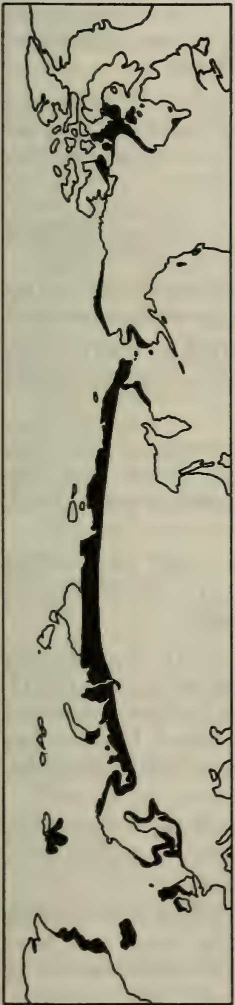


Figure 1. The breeding distribution of Dunlin *Calidris alpina*.

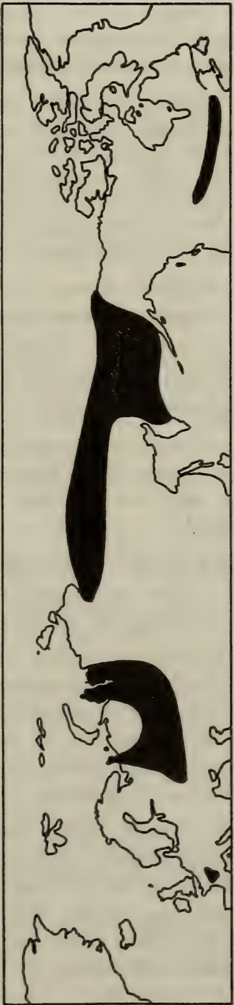


Figure 7. Tundra refuges that were utilised by Dunlin *Calidris alpina* during the last glaciation.

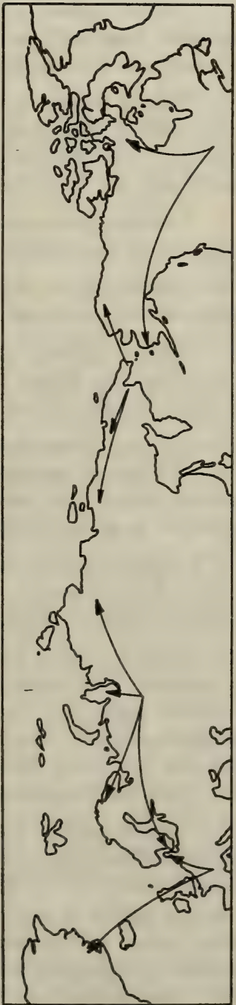


Figure 8. Movements of Dunlin *Calidris alpina* populations since the last glaciation.

The Dunlin's breeding distribution is mainly Holarctic, with intermittent gaps, and in some areas is sub-Arctic. Briefly, the range extends through northeast Greenland, Iceland, Britain, Ireland, the Baltic, southern Norway, Lappland, arctic Russia, northern and southern Alaska and northeast Canada (Fig. 1). Previous studies of geographical variation in Dunlin have concerned only restricted populations or only one or two characters: MacLean & Holmes (1971) and Browning (1977) examined variation in bill-length in North American populations, Väisänen (1977) egg dimensions in western Europe, Soikkeli (1966) bill-length and wing-length in western Europe, and Ferns & Green (1979) breeding-plumage variations of populations migrating through Britain.

Up to 9 subspecies of Dunlin are currently recognised.

1. *Calidris alpina alpina* = *Tringa alpina* Linnaeus, 1758. Type locality Lappland. Vaurie (1965) regards the range as including Norway, Spitzbergen and northern Russia with a cline eastwards towards *sakhalina.*

2. *Calidris alpina schinzii* = *Pelidna schinzii* Brehm, 1822. Type locality Rugen Island. Range: southeast Greenland (although this breeding site is not permanent – Nørrevang 1963), Iceland (= *islandica,* see below), Britain, Ireland and the Netherlands east to the Baltic (Vaurie 1965).

3. *Calidris alpina arctica* = *Erolia alpina arctica* Schiøler, 1922. Type locality east coast of Greenland. Restricted to northeast Greenland (Vaurie 1965).

4. *Calidris alpina islandica* = *Erolia alpina islandica* Schiøler, 1922. Type locality Iceland. Vaurie (1965) regards this population as belonging to *schinzii.*

5. *Calidris alpina sakhalina* = *Scolopax sakhalina* Vieillot, 1816. Type locality Sakhalin Island. Range: northeast Siberia, east of *alpina* (Vaurie 1965). The type locality is out of the breeding range.

6. *Calidris alpina centralis* = *Erolia alpina centralis* Buturlin, 1932. Type locality Yakutsk on the Lena River. This subspecies is central in a cline between *alpina* and *sakhalina,* and is not widely recognised; Vaurie (1965) regards it as poorly differentiated.

7. *Calidris alpina arcticola* = *Erolia alpina arcticola* Todd, 1953. Type locality Point Barrow, Alaska. Not recognised by A.O.U. (1957), but by Browning (1977), who gives the range as northern Alaska.

8. *Calidris alpina pacifica* = *Pelidna pacifica* Coues, 1861. Type locality Simiahmoo, Washington. The only subspecies recognised by A.O.U. (1957) in North America, ranging through northern Alaska (includes *arcticola),* southern Alaska, Southampton Island to the west coast of Hudson Bay (includes *hudsonia).* Browning (1977) restricts the range to southern Alaska. The type locality is outside the breeding range.

9. *Calidris alpina hudsonia* = *Erolia alpina hudsonia* Todd, 1953. Type locality Southampton Island, Hudson Bay. Not recognised by A.O.U. (1957), but Browning (1977) gives the range as northeastern Canada.

As the species is migratory and populations show considerable mixing in the winter range (Greenwood 1984), birds from the breeding range only were examined for geographical variation (Soikkeli (1967) has shown Dunlin to be highly philopatric).

Morphological characters examined

The following measurements of museum skins were used to examine geographical variation:

Wing-length. Maximum flattened primaries were measured to the nearest 0.5 mm. Both wings were measured and where there was a difference the longer measurement was used.

Bill-length. The upper mandible, from the tip to the beginning of the feathers was measured to the nearest 0.1 mm.

Tarsus-length was measured to the nearest 0.5 mm from the posterior aspect of the joint between the tarsometatarsus and tibiotarsus to the anterior aspect of the joint between the tarsometatarsus and the proximal phalange of the middle toe.

Tarsus-width was measured to the nearest 0.01 mm at the narrowest (side to side) part of the tarsus.

Tail-length was measured to the nearest 0.5 mm from the tip of the central feathers to the point of quill insertion on the undersurface.

In addition, the amount of white on the leading edge of the 4th outermost primary was estimated on a 1 to 13 point scale, rising from no white (1) to completely white (13). This character was used by Horvath & Keve (1956) for recognising *C.a. centralis.* Additional information was obtained from the data labels attached to specimens, including locality, date of capture and sex.

Reliability and repeatability of measurements

Repeated wing and tail measurements varied by up to 1 mm, bill-length by up to 0.1 mm, tarsus-width by up to 0.01 mm, tarsus-length by up to 0.5 mm, and the amount of white on the primaries by up to 1 point on the scale. Owing to the problems of comparison of measurements from different sources, only my own measurements have been used.

With regard to post-mortem shrinkage of skins, only wing- and tail-measurements show any significant change (Greenwood 1979a). Engelmoer *et al.* (1983) suggest that shrinkage of wing and tail continues for up to only 3 years. All my specimens were older than 3 years so this source of variable error can be safely ignored.

Abrasion may cause some difficulties in mensural data, so to avoid any possible bias only specimens which showed no feather abrasion were used in my analysis.

Seasonal changes in bill-length have been shown to be due to changes in dietary habit (Davis 1954, Packard 1967), but because Dunlin feed almost exclusively by probing at all seasons, the rates of abrasion and regrowth are probably similar and cause little seasonal change in bill-length, although there is no direct evidence of this from recaptured Dunlin. Measurements in this study were examined for seasonal change, but no trends were apparent (Greenwood 1979b), and so can be ignored.

Over longer periods, changes in the environment may cause a change in the phenotype either directly or by selection, genetic drift may occur, or there may be a shift in the breeding distribution of populations (Miller 1956, Power 1970). The data in this study were examined for secular change but none was apparent (Greenwood 1979b).

Localities

The localities from which specimens originated were allocated for the purpose of analysis to a number of geographical regions, which varied greatly

TABLE 1

Measurements of Dunlin *Calidris alpina*, giving mean values, standard deviations and (sample sizes).

Locality (see text)	*Wing length/mm*		*Tarsus length/mm*		*Tarsus width/mm*		*Bill length/mm*		*Tail length/mm*		*White vane*	
	male	*female*	*male*	*female*	*male*	*female*	*male*	*female*	*male*	*female*	*male*	*female*
1	111.59	115.52	22.79	23.94	1.44	1.48	26.07	29.45	47.56	48.27	5.88	6.66
	2.14	2.23	0.64	0.91	0.07	0.08	1.11	1.09	2.44	2.83	1.91	2.90
	(52)	(32)	(52)	(32)	(52)	(32)	(51)	(31)	(52)	(32)	(52)	(32)
2	113.08	115.83	24.34	25.26	1.46	1.50	28.71	31.99	47.31	47.74	4.97	5.05
	2.43	2.63	0.73	0.87	0.06	0.07	1.35	1.87	2.57	2.53	1.65	2.17
	(75)	(56)	(75)	(56)	(74)	(55)	(69)	(51)	(75)	(57)	(74)	(57)
3	111.10	114.88	23.81	25.23	1.47	1.49	28.48	31.06	45.93	48.08	5.00	4.92
	1.91	2.54	0.93	0.90	0.08	0.06	2.03	1.45	2.89	2.44	1.92	1.98
	(21)	(13)	(21)	(13)	(21)	(13)	(21)	(13)	(21)	(13)	(20)	(13)
4	110.67	114.29	23.77	24.90	1.48	1.51	26.95	30.91	46.67	47.69	3.70	4.78
	2.40	3.26	0.85	0.88	0.06	0.06	1.37	1.89	2.76	1.69	1.29	1.57
	(24)	(24)	(24)	(24)	(24)	(24)	(22)	(22)	(24)	(24)	(23)	(23)
5	110.70	113.14	23.85	24.36	1.51	1.50	28.01	30.13	47.22	47.00	4.30	3.57
	2.19	3.02	0.47	1.25	0.05	0.05	1.30	1.60	3.04	1.32	1.77	1.51
	(10)	(7)	(10)	(7)	(9)	(7)	(10)	(7)	(9)	(7)	(10)	(7)
6	111.50	114.06	23.91	24.92	1.45	1.49	28.73	31.85	46.69	46.67	5.12	4.98
	3.29	3.17	0.90	0.87	0.06	0.06	1.99	1.98	3.00	2.39	2.02	2.11
	(59)	(45)	(58)	(45)	(58)	(45)	(59)	(43)	(59)	(46)	(58)	(45)
7	113.23	117.00	24.59	26.17	1.47	1.44	29.65	34.10	47.71	48.17	6.09	6.33
	2.78	5.57	0.86	1.89	0.07	0.12	1.25	2.52	1.90	2.36	3.21	2.08
	(11)	(3)	(11)	(3)	(11)	(3)	(11)	(3)	(11)	(3)	(11)	(3)

8	112.68 3.07 (14)	116.72 2.64 (16)	24.14 0.63 (14)	24.94 0.68 (16)	1.48 0.04 (14)	1.47 0.06 (16)	28.11 1.84 (14)	31.62 2.14 (16)	45.89 2.54 (14)	48.13 1.58 (16)	5.29 2.23 (14)	5.25 2.08 (16)
9	112.17 4.17 (12)	116.71 4.54 (7)	23.33 0.71 (9)	24.58 0.66 (6)	1.47 0.09 (9)	1.51 0.06 (6)	28.39 2.47 (12)	33.70 3.13 (6)	45.75 2.77 (12)	47.64 3.52 (7)	6.17 2.37 (12)	5.43 2.30 (7)
10	116.04 2.13 (25)	118.08 2.31 (19)	24.18 0.79 (25)	25.74 0.82 (19)	1.52 0.09 (23)	1.53 0.07 (18)	29.76 1.42 (23)	33.68 1.32 (19)	50.20 3.93 (25)	49.63 3.02 (19)	5.84 2.53 (25)	5.28 2.14 (18)
11	114.78 1.83 (18)	117.43 3.66 (7)	24.50 0.64 (18)	25.21 1.11 (7)	1.49 0.05 (18)	1.51 0.04 (6)	30.85 1.06 (13)	32.67 1.80 (7)	47.44 3.23 (18)	47.07 3.66 (7)	6.00 2.45 (18)	6.00 3.00 (7)
12	113.79 2.55 (12)	115.50 2.89 (4)	24.67 0.94 (12)	25.75 1.04 (4)	1.52 0.07 (12)	1.56 0.04 (4)	31.74 1.61 (12)	34.20 3.09 (4)	49.54 3.88 (12)	51.88 4.52 (4)	5.36 3.35 (11)	4.75 3.30 (4)
13	118.14 3.19 (14)	119.06 2.99 (8)	25.61 0.84 (14)	26.25 0.53 (8)	1.50 0.08 (15)	1.54 0.10 (8)	32.01 1.74 (15)	35.09 2.47 (8)	47.96 3.90 (14)	47.56 3.45 (8)	10.33 3.24 (15)	9.13 3.40 (8)
14	121.36 2.44 (58)	124.99 2.88 (41)	26.56 0.96 (62)	27.54 0.78 (42)	1.54 0.06 (63)	1.57 0.06 (42)	36.69 1.93 (62)	40.19 1.45 (41)	51.37 2.90 (61)	52.44 3.01 (42)	8.78 2.36 (60)	8.97 2.38 (38)
15	121.76 2.59 (78)	125.08 2.07 (53)	26.19 0.77 (87)	27.13 0.83 (65)	1.54 0.05 (87)	1.56 0.06 (66)	33.78 1.71 (85)	36.59 1.98 (66)	51.20 2.88 (80)	51.70 2.85 (57)	12.29 1.50 (75)	12.28 1.95 (57)
16	120.28 1.62 (9)	121.57 2.13 (7)	27.39 0.60 (9)	27.63 0.64 (8)	1.58 0.06 (37)	1.59 0.03 (8)	32.26 1.08 (9)	39.03 1.44 (8)	48.72 2.53 (9)	48.56 1.94 (8)	10.25 1.17 (8)	10.00 3.02 (8)
17	119.55 2.44 (37)	122.15 2.22 (27)	27.01 1.10 (37)	27.44 0.76 (27)	1.55 0.06 (9)	1.58 0.05 (27)	36.38 1.84 (37)	39.06 1.69 (27)	48.96 2.43 (36)	50.26 2.44 (27)	9.36 2.40 (36)	9.93 2.43 (27)

in size, each having to be large enough to produce sufficient specimens for statistical analysis and yet small enough to show the fine detail of geographical variation. Each specimen was allocated to one of 17 localities:

1. NE Greenland.
2. Iceland.
3. Great Britain, north of 58°N.
4. Great Britain, 55°N–58°N.
5. Great Britain, south of 55°N, and Ireland.
6. S and SE Baltic.
7. Finland.
8. S Norway.
9. S Sweden.
10. Lappland.
11. W Siberia, east to the Ural Mts.
12. Siberia, from the Ural Mts to the Yenesei Valley.
13. E Siberia, west to the Yenesei Valley.
14. S Alaska, north to Cape Prince of Wales.
15. N Alaska, south to the Brooks Range.
16. NW Hudson Bay.
17. SW Hudson Bay.

Analysis of data

The specimens analysed were those obtained within the breeding range between May and July inclusive. Some specimens collected in April and August were regarded as breeders if they were obtained in areas where immigration from other localities was unlikely, and indeed, verification of breeding status was often found on the specimen's label. The sex of the individual, if known, was taken from the data label. In addition, birds were separated sexually in western Europe by slight variation in neck plumage (Soikkeli 1966), although this differentiation is not applicable to Alaskan populations (R. T. Holmes). The initial analysis determined the mean, standard deviation and sample size for all characters and both sexes at each locality.

The usual criterion of statistical significance is $P = 0.05$, which clearly presents problems when one is performing many significance tests simultaneously, as here, and there is no agreed solution, though it is generally accepted that one should adopt a more stringent significance criterion. I have therefore followed the recommendation of Cooper (1968) that this should be alpha-$P = 0.05/n$, where n is the number of tests being performed.

RESULTS

Univariate analysis of inter-locality variation

The initial data are shown in Table 1. For all characters, the smallest means are generally found in Greenland and the western Palaearctic, and the largest in the eastern Palaearctic and the Nearctic. In order to examine the significance of this variation, I have used Gabriel's Sums of Squares Simultaneous Testing Procedure (SS-STP) (Gabriel & Sokal 1969). The test is used to detect significant differences between subsets of samples within the total number of samples. My analysis treated sexes separately because Dunlin are sexually dimorphic (Greenwood 1979b). Prior to using SS-STP, the data were analysed by Anova, and as 12 of these analyses were performed (2 sexes x 6 characters) a modified significance level of alpha-$P = 0.004$ was used. The anovas showed there was significant difference ($P<0.001$) within males and females for all characters. Anovas enabled the calculation of coefficients of intra-class correlation and showed (Table 2) that wing-length, tarsus-length and bill-length are particularly important in describing inter-locality variation.

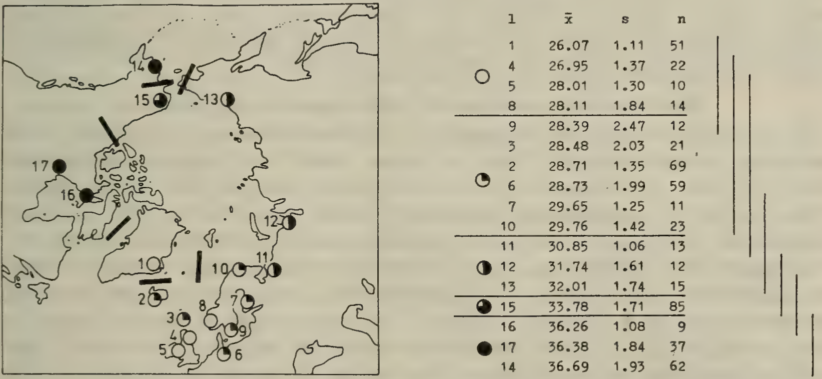
The results of the SS-STP provide the geographical patterns, and the all-important bill-lengths of males and females are shown in Figs. 2 & 3 respectively. The lines to the right of the means show those subsets within which the differences between samples are not significant, that is when the

TABLE 2

Univariate analysis of inter-locality variation in Dunlin *Calidris alpina.* Results of Anova. All F-ratios are significant at P<0.001 for the degrees of freedom (d.f.) shown. A high coefficient of intra-class correlation indicates that the character is important in interpreting inter-locality variation.

Character	Sex	F-ratio	d.f.	Coefficient of intra-class correlation/%
Wing-length	M	91	16,512	75
	F	58	16,352	73
Tarsus-length	M	89	16,521	74
	F	48	16,365	69
Tarsus-width	M	14	16,519	29
	F	8	16,363	25
Bill-length	M	130	16,508	81
	F	85	16,355	80
Tail-length	M	15	16,515	32
	F	13	16,360	37
White vane	M	19	16,506	62
	F	35	16,353	62

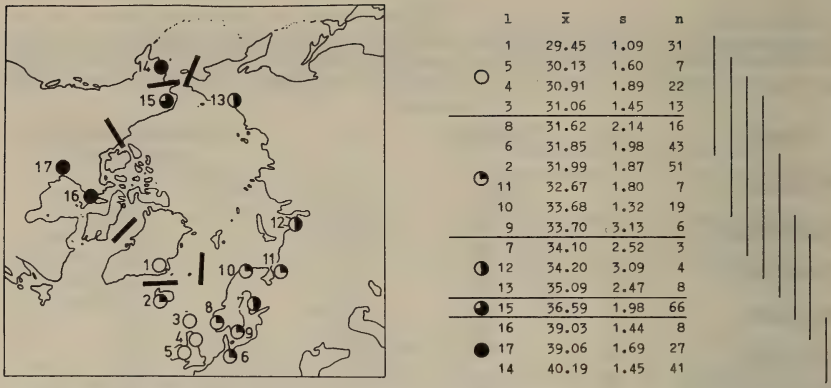
samples are arranged in order of means and when subsets are omitted whose members are all contained in a larger subset. Maps of variation in the other characters can be inspected in Greenwood (1979b).



	1	x̄	s	n
	1	26.07	1.11	51
	4	26.95	1.37	22
○	5	28.01	1.30	10
	8	28.11	1.84	14
	9	28.39	2.47	12
	3	28.48	2.03	21
	2	28.71	1.35	69
◔	6	28.73	1.99	59
	7	29.65	1.25	11
	10	29.76	1.42	23
	11	30.85	1.06	13
◑	12	31.74	1.61	12
	13	32.01	1.74	15
◕	15	33.78	1.71	85
	16	36.26	1.08	9
●	17	36.38	1.84	37
	14	36.69	1.93	62

Figure 2. Inter-locality variation of bill-length of male Dunlin *Calidris alpina.* Means (x̄) are ranked in increasing order of magnitude, along with locality number (1), standard deviation (s), and sample size (n). Lines to the right of these data each represent a maximal non-significant subset resulting from comparisons using SS-STP (for further explanation see text). Occasional bars separating localities on the map indicate those adjacent localities which are significantly different mensuraly from one another. The populations with the largest means for bill-length are represented by solid circles, the smallest by open circles. The intervals were obtained by dividing the range of means into 5 equal parts.

For all the morphological characters, the correlations between male and female mean measurements were significant and can be taken as evidence for ordered geographical variation (Greenwood 1979b). Correlation coefficients were calculated between all pairs of characters, using sample means rather than individual measurements: all were positively correlated, and only 4 out of the 30 were not significant (Greenwood 1979b). Bill-length is the character that appears to show the most extensive variation (Figs. 2 & 3), and also shows the greatest discriminating power between localities (Table 2). Horvath & Keve (1956) suggested that a larger amount of white on the leading edge of the



	l	x̄	s	n
	1	29.45	1.09	31
○	5	30.13	1.60	7
	4	30.91	1.89	22
	3	31.06	1.45	13
	8	31.62	2.14	16
	6	31.85	1.98	43
	2	31.99	1.87	51
◔	11	32.67	1.80	7
	10	33.68	1.32	19
	9	33.70	3.13	6
	7	34.10	2.52	3
◑	12	34.20	3.09	4
	13	35.09	2.47	8
◕	15	36.59	1.98	66
	16	39.03	1.44	8
●	17	39.06	1.69	27
	14	40.19	1.45	41

Figure 3. Inter-locality variation of bill length in female Dunlin *Calidris alpina* (see Fig. 2 for explanation).

fourth primary (white vane) could be used to separate central Siberian populations from those to the west which had less white. My results show that mean scores of less than 7 occur to the west of the Yenesei Valley, and mean scores above 7 occur to the east of the Yenesei Valley (Table 1). Thus Horvath & Keve's statement needs to be modified to include all eastern Palaearctic and Nearctic populations with the central Siberian ones.

Multivariate analysis of inter-locality variation

Multivariate analysis of geographical variation allows all characters to be examined simultaneously. The technique used here, linear discriminate analysis (LDA, also known as canonical variate analysis), has been used in other studies of geographical variation in birds (e.g. Power 1970, and see Greenwood 1979b.). An individual specimen can be represented as a point in a hyperspace of 6 dimensions, each dimension corresponding to one of the 6 measurements used. A group of specimens with similar measurements would be represented by a cluster of points. The group mean is referred to as the group centroid. LDA creates new axes or canonical variates, each of which has a value indicating the importance of that variate in separating the groups. The relative contributions of the characters to each canonical variate are represented by an 'eigenvector' (latent vector). Because LDA considers all characters together, specimens with data missing for one or more characters had to be omitted from the analysis.

A multivariate analysis of variance was performed in this way on the 6 Dunlin characters together, and the Wilks' lambda statistics for each character and for each canonical variate were converted for convenience to univariate F-ratios and chi-square respectively to test the significance of the inter-locality differences in the characters and in the canonical variates.

As in the univariate analysis, the sexes were considered separately, 474 males and 331 females. LDA requires that each sample contains at least one more specimen than the number of characters used, and some of the localities contained insufficient females for analysis. They were pooled with adjacent localities – locality 6 with 7, 8 with 9, and 11 with 12, since the univariate analysis showed no significant differences between pooled localities (except for tail-length between localities 11 and 12).

TABLE 3

Eigenvectors (see text) in a multivariate analysis of inter-locality variation in Dunlin *Calidris alpina*. The absolute value of each element measures the relative contribution of the relevant canonical variate.

		Canonical variates					
Character	Sex	1	2	3	4	5	6
Wing-length	M	−0.41	1.03	−0.24	−0.70	1.46	1.19
	F	−0.54	1.07	1.06	−0.40	0.62	1.20
Tarsus-length	M	−0.37	−0.35	1.70	−1.04	−0.12	−0.73
	F	−0.42	−0.33	−0.96	−1.54	0.25	−0.58
Tarsus-width	M	−0.13	−0.05	−0.05	−0.23	−0.93	0.69
	F	−0.10	−0.10	−0.20	−0.11	−0.96	0.60
Bill-length	M	−1.58	−1.54	−1.20	1.36	−0.06	−0.07
	F	−1.38	−1.38	0.41	1.52	0.21	0.06
Tail-length	M	−0.07	0.20	−0.58	−0.51	−0.54	−0.90
	F	−0.09	0.13	0.46	−0.18	−0.65	−0.94
White vane	M	−0.50	1.11	0.26	0.87	−0.48	−0.33
	F	−0.39	0.90	−0.89	0.61	−0.16	−0.39

There was significant inter-locality variation for all characters, greatest for bill-length in both males and females. The first and second canonical variates explain nearly 95% of the variation in males and nearly 96% in females, with bill-length, white-vane, and wing-length contributing most to these variates (Table 3). Group centroids for each locality sample are plotted graphically in Figs. 4 & 5 for males and females respectively; clustering of some group centroids is apparent. The results for LDA for the 2 sexes were clearly similar: bill-length, wing-length and white-vane being responsible for the greatest variation between groups, especially bill-length.

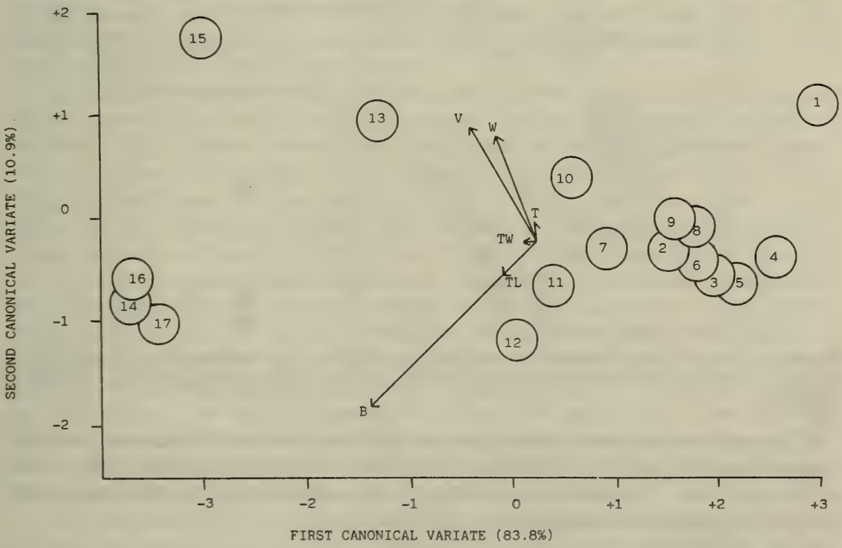


Figure 4. Linear discriminate analysis for samples of male Dunlin *Calidris alpina*. Group centroids for each locality are plotted on the first two canonical variates. The superimposed vectors emanate from the grand mean and their lengths reflect their contributions to the variation accounted for by these canonical variates, and their angles their relative contributions to the two variates. The characters are abbreviated; W, wing-length; TL, tarsus-length; TW, tarsus-width; B, bill-length; T, tail-length; V, white-vane.

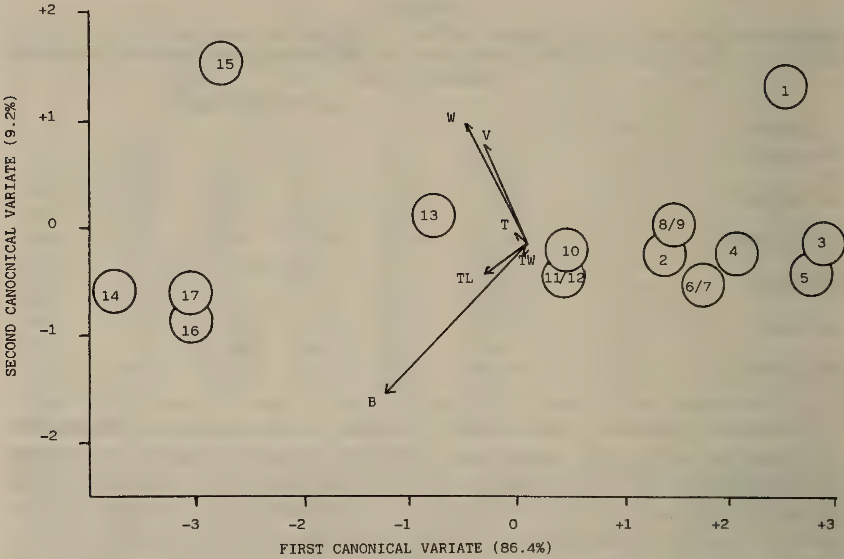
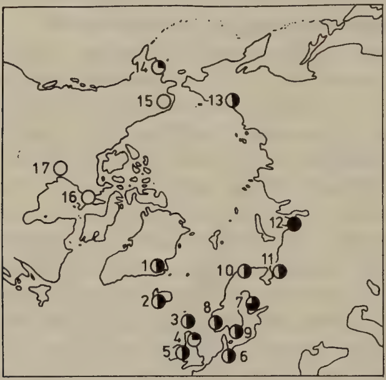


Figure 5. Linear discriminate analysis for samples of female Dunlin *Calidris alpina* (see Fig. 4 for explanation).



	l	$\bar{x}$
○	15	5.55
	16	5.89
	17	7.28
◔	14	7.67
	4	9.05
◑	1	9.64
	2	9.77
	13	9.87
	5	10.10
	3	10.21
	8	10.35
	10	10.58
	6	10.66
	11	10.99
	9	11.31
◕	7	11.38
●	12	15.20

Figure 6. The coefficient of variation, expressed as a mean, in increasing order of magnitude to show intra-locality variation in populations of the Dunlin *Calidris alpina*. (See Fig. 2 for key to symbols.)

The multivariate results thus agree with those of the univariate analysis; bill-length has the greatest discriminating power between localities and tarsus-width the least. Population clustering was the same for males and females and gave clear geographical separation as follows:

1. Greenland;
2. Iceland, the British Isles, and the Baltic coasts;
3. Lappland, western and central Russia;
4. Eastern Russia;
5. Northern Alaska;
6. Southern Alaska and Canada.

Intra-locality variation

The coefficient of variation was used to express the character variation at each locality, and was calculated for each character; although the magnitudes varied with each character, the pattern of variation between localities was similar for all 6 characters both for the sexes combined and separate, thus demonstrating ordered geographical variation. A mean coefficient of variation was calculated for each locality to show up the geographical patterns (Fig. 6). The greatest intra-locality variations were in Finland and central Russia, the least variable were in Canada and northern Alaska; geographically intermediate populations showed intermediate levels of variation.

DISCUSSION

Evolution of Geographical Variation

It is generally recognised that the glacial and interglacial events of the Pleistocene have been important in speciation and subspeciation of birds and other organisms by causing geographic isolation of populations and thus opportunity to diverge. Such geographic isolation does not necessarily lead to the formation of new species (Mayr 1970) and when isolated populations meet once again the secondary contact may cause no more than clines. However, such clines may form the basis for subsequent speciation (allo-parapatric), while if populations remain differentiated after secondary contact then allopatric speciation has taken place (Endler 1977).

Larson (1957) regards the Charadriiformes as having evolved during the tertiary period, many species being adapted then to living in cold tundra situations. He also regards the last glaciation as the most important in the distribution of present-day subspecies, whilst earlier glaciations would have been responsible for species formation.

The avifauna adapted to cold environments suffered dramatically during the Pleistocene. In the last interglacial period, tundra was present in only 4 northerly areas, namely in northern Greenland and northern Ellesmere Island, in eastern Siberia, in northern Alaska, and in southern Alaska (Larson 1957). Cold-adapted Charadriiformes will have been restricted to these areas. At the end of the last interglacial period, the formation of ice gradually pushed the tundra areas southwards together with their bird populations. If Larson's assumptions are correct, no subspecies of Dunlin would have existed before the last glaciation and a 'common' type Dunlin would have been forced southwards in front of the advancing ice, the species being maintained in isolated tundra refuges. Some differentiation may have taken place in these refuges, but no isolating mechanisms in Dunlin can have evolved by the end of the glaciation, after which populations met once again and inter-breeding became possible. The present time may also be regarded as interglacial, although the tundra biome is now Holarctic (Pruitt 1978), offering a much greater area for occupation by cold-adapted Charadriiformes.

An understanding of the mechanism of Dunlin subspeciation depends upon an accurate knowledge of the geographical distribution of suitable tundra refuges during the last glaciation. Earlier deductions regarding differentiation (Johansen 1956, 1958, Larson 1957) were based upon less knowledge of positions and extents of refuges than is now available. Further Palaeobotanical research has provided fresh information (Frenzel 1968) which, together with the earlier work (Larson 1957), shows that 4 tundra refuges existed during the last glacial period: one in France, the second in central Siberia, the third, the Beringian, extending from eastern Siberia across the Bering Sea to Alaska, and the fourth in North America extending east from the Rocky Mountains (Fig. 7). On the assumption that at the height of the last glaciation, some 25 000 years BP, Dunlin populations were isolated in these 4 tundra refuges, and if modern characteristics of Dunlin reflect evolutionary history to some extent, then the course of differentiation may be reconstructed with the acceptance of these 4 tundra refuges, together with the existence of 6 geographical groups of Dunlin as shown by the results of LDA.

During the next 15 000 years the ice retreated to a distribution similar to that today (Moreau 1954). It seems likely that the Dunlin population in the small, very isolated French refuge spread northwards on the retreat of the ice, eventually colonising Greenland. The central Siberian population spread westwards and formed a zone of secondary contact in northwestern Europe with Dunlin from the French refuge. The Beringian population became divided by the rising sea-level at the end of the glaciation causing the Bering land bridge to disappear: the population isolated in eastern Siberia remained there and possibly advanced westwards to form a zone of secondary contact in central Siberia with birds from the Siberian refuge, while the eastern Beringian population remained in northern Alaska. The Dunlin from the North American refuge will have spread north and diverged into 2 groups, one westwards into southern Alaska, the other into northeast Canada (northwest Canada holds no Dunlin). Fig. 8 illustrates these postglacial events.

This account of events suggests that 2 zones of secondary contact were formed, one in northwest Europe and the other in central Siberia. The analysis of intra-locality variation gives support to this: it is generally recognised that populations show increased variability in areas of secondary intergradation (Endler 1977, Mayr 1969) and the 2 localities with the highest coefficients of variation are around the Baltic and in central USSR. In probable zones of secondary contact in Redshank *Tringa totanus,* Hale (1971) found that full breeding plumage was often not assumed. Although the extent of full breeding plumage was not quantified in this study, it is known that Dunlin from western Europe assume only an incomplete black belly-patch in their pre-nuptial moult (Witherby *et al.* 1940). This has not been noticed in skins of central Siberian populations.

Evidence of a zone of secondary contact in western Europe has come from other studies of Charadriiformes, including both northern and temperate species, e.g. Ringed Plover *Charadrius hiaticula* (Taylor 1978), Golden Plover *Pluvialis apricaria* (Hale 1980) and Black-tailed Godwit *Limosa limosa* (Rynn 1982).

Taxonomy of *Calidris alpina*

The analysis of Dunlin morphometrics clearly shows the existence of 6 geographical groups. Birds from Greenland are geographically isolated from all other groups and may be distinguished by their short bills. A second group of Dunlin from Iceland, the British Isles, the Baltic and southern Scandinavia are also geographically isolated. A third group shows obvious clinal variation from Lappland eastwards to central Siberia, a cline shown mainly by increasing bill-length. There is a step in the cline, with populations east of the Urals starting post-nuptial primary moult on the breeding grounds and populations to the west of the Urals as far as Greenland starting this moult away from the breeding grounds (Greenwood 1983). A fourth group, which is contiguous with the third, is apparent in eastern Siberia: it is distinguished from more westerly populations by its longer wings. A fifth group is spatially separated from all others in northern Alaska. The final group concerns birds from southern Alaska and Canada. Although the members of this group are morphometrically similar, they may be separated into 2 component populations which have separate ranges on both the breeding and the wintering grounds (Greenwood 1984). Based upon this I accept 7 subspecies.

arctica: range, northeast Greenland;
schinzii: range, Iceland, the British Isles, western Europe, the Baltic and southern Scandinavia;
alpina: range, Lappland and northwest USSR – the precise eastern limit is difficult to determine as so few skins were available for examination from northern Russia, but the range may well include the Taimyr peninsula;
sakhalina: range, eastern USSR. The precise western limit is difficult to determine due to lack of specimens, but probably extends to the Lena valley;
arcticola: range, northern Alaska;
pacifica: range, southern Alaska;
hudsonia: range. North West Territories, Canada.

I reject 2 subspecies: *islandica,* because the population is morphometrically similar to others from the hybrid zone of *schinzii;* and *centralis,* because the evidence for a zone of secondary contact in northern Siberia between *sakhalina* and *alpina* is so slight. Studies of Dunlin in the region of the Khrebet Orulgan Mountains may help to determine whether such a zone exists.

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Notes on Philippine birds, 8. A collection from Mindoro revisited

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Blasius (1897a, b) published only abbreviated results of the collecting carried out in Mindoro by Dr Platen and his wife from April to November 1890, and did so in a relatively obscure journal, perhaps because by that time the results of 3 later collections had been published and the Platens had lost the credit for 42 forms that they had in fact been the first to collect in Mindoro (see Appendix 1). Hartlaub (1899) made a reference to the reports of Blasius but subsequently virtually no author dealing with the Philippines in general or Mindoro in particular has referred to them. In consequence, although Blasius listed 46 forms as new to Mindoro – of which 6, in fact, are to be found in the 42 claimed by other authors – the credit for most of the remaining discoveries by the Platens was claimed by later authors (see Appendix 2).

McGregor (1909) listed a few species for Mindoro, sometimes with a query, giving Platen as the collector. The queries and the incompleteness of such records make it clear that McGregor had not seen either Blasius's papers or the supporting specimens. Blasius (1888a, b, c, 1890a, b, c, 1891) had earlier published more extensive reports of collections, now mainly in the Staatliches Naturhistorisches Museum Braunschweig (SNMB), made by the Platens in the Sulus, Palawan and Mindanao and had described a number of new species. Later, Blasius (1897b) reported that the Platens had brought back 728 skins of 141 forms from Mindoro.

In July 1962, whilst working on the colections at SNMB, we discovered that most of the forms collected by the Platens in Mindoro were represented, the SNMB now holding 222 specimens of 124 forms, all from the Platens, but some also from the collection of Amtmann Nehrkorn, a leading citizen of Braunschweig of the time, who seems to have provided the Platens with funds for their work.

APPENDIX 1

Species collected in Mindoro by Dr & Mrs Platen, 1890, excluding those taken by the Steere Expedition 1888 or by Schmacker 1888-9, as well as those in Appendix 2, to show earlier publications of later collections.

Specific name used by duPont (1971)	Bourns & Worcester (1894)	Everett (Hartert 1895)	Specific name used by duPont (1971)	Bourns & Worcester (1894)	Everett (Hartert 1895)
Ardea purpurea	X		*Ducula bicolor*	X	
Butorides striatus	X		*Macropygia phasianella*	X	
Egretta sacra	X		*Geopelia striata*		X
Ciconia episcopus	X		*Chalcophaps indica*	X	
Dendrocygna arcuata	X		*Centropus steerii**	X	
Pandion haliaetus		X	*Ninox philippensis**	X	
Haliastur indus	X		*Eurostopodus macrotis*	X	
Haliaeetus leucogaster	X		*Dendrocopos maculatus*		X
Icthyophaga ichthyaetus	X		*Hirundo rustica*	X	
Accipiter virgatus		X	*Pericrocotus divaricatus*		X
Butastur indicus		X	*Parus elegans*	X	
Microhierax erythrogonys	X		*Copsychus saularis*	X	
Falco severus		X	*Phylloscopus borealis*	X	
Rallus torquatus	X		*Cisticola exilis*	X	
*Rallina eurizonoides**	X		*Muscicapa griseisticta*	X	
Poliolimnas cinereus	X		*Rhipidura javanica*	X	
Amaurornis phoenicurus	X		*Aethopyga shelleyi*	X	
Gallicrex cinerea	X		*Dicaeum aeruginosum**		X
Treron pompadora		X	*Dicaeum bicolor*		X
Ptilinopus occipitalis	X				

Notes: * = see text

Whitehead (Ogilvie Grant 1896) also recorded *Ducula poliocephala, Cacomantis merulinus** and *Ninox scutulata**.

APPENDIX 2

List of species claimed as new to Mindoro by Blasius (1897b) based on the collections of Dr & Mrs Platen 1890, and showing authors subsequently publishing (first) records for Mindoro.

Specific name used by duPont (1971)	Name used by Blasius (1897b)	Reference to recent record
Egretta garzetta	*Herodias nigripes*	McGregor 1906
Nycticorax caledonicus	*Nycticorax caledonica*	McGregor 1905
Anas crecca	*Querquedula crecca*	
Anas luzonica	*Anas luzonica*	McGregor 1904
Circus melanoleucos	*Circus melanoleucos*	
Accipiter soloensis	*Tachyspiza soloensis*	Ripley & Rabor 1958
Spizaetus philippensis	*Spizaetus philippensis*	McGregor 1906
Megapodius freycinet	*Megapodius dillwyni*	McGregor 1905
Coturnix chinensis	*Excalfactoria chinensis*	McGregor 1904
Rallus striatus	*Hypotaenidia striata*	McGregor 1905
Amaurornis olivaceus	*Amaurornis olivacea*	McGregor 1905
Rostratula benghalensis	*Rhynchaea capensis*	
Pluvialis dominica	*Charadrius fulvus*	McGregor 1904
Charadrius dubius	*Aegialitis dubia*	Worcester & Bourns 1898
Charadrius leschenaultii	*Aegialitis geoffroyi*	
Numenius phaeopus	*Numenius variegatus*	Temme 1976
Numenius madagascariensis	*Numenius cyanopus*	
Tringa totanus	*Totanus calidris*	McGregor 1906
Tringa glareola	*Rhyacophilus glareola*	Ripley & Rabor 1958
Tringa incanus	*Totanus incanus*	Temme 1976
Gallinago megala	*Gallinago megala*	McGregor 1905
Esacus magnirostris	*Esacus magnirostris*	
Treron vernans	*Osmotreron vernans*	McGregor 1905
Ptilinopus leclancheri	*Leucotreron leclancheri*	McGregor 1903
Columba vitiensis	*Janthoenas griseigularis*	McGregor 1905
Cuculus sparverioides	*Hieracoccyx strenuus*	Meyer de Schauensee 1957
Cuculus fugax	*Hieracoccyx pectoralis*	McGregor 1904
Cuculus saturatus	*Cuculus canorides*	Peters 1939
Cacomantis variolosus	*Cacomantis sepulcralis*	Ripley & Rabor 1958
Surniculus lugubris	*Surniculus lugubris*	McGregor 1904
Tyto capensis	*Scelostrix candida*	Temme 1973
Caprimulgus macrurus	*Caprimulgus manillensis*	McGregor 1905
Ceyx melanurus	*Ceyx melanura*	(Error, see text)
Halcyon coromanda	*Callialcyon coromanda*	McGregor 1904
Coracina morio	*Volvocivora mindanensis*	McGregor 1905
Ficedula narcissina	*Xanthopygia narcissina*	
Motacilla flava	*Budytes viridis*	Worcester & Bourns 1898
Anthus novaeseelandiae	*Anthus striolatus*	(Error, see text)
Anthus gustavi	*Anthus gustavi*	McGregor 1904
Lonchura leucogastra	*Oxycerca everetti*	McGregor 1906

Note: The above table excludes 6 species that Blasius (1897b) included in his list of species new to Mindoro but which had in fact been published earlier and are included in Appendix 1. He called them: *Teraspiza virgata, Osmotreron axillaris, Geopelia striata, Ninox macroptera, Lyncornis mindanensis* and *Jyngipicus maculatus.*

In view of the obscurity of the papers by Blasius (1897a, b) and:

- the fact that 3 species remain listed for Mindoro solely on the basis of the listing by McGregor (1909) of Platen as a collector;
- the fact that 4 other species that Blasius (1897b) listed as new to Mindoro have not been collected since;
- and finally because 2 of the species that Blasius listed were misidentified and require correction (a process which adds one species to the Mindoro list in place of another);

it was felt useful to provide notes on these 9 species.

In a second section, covering 5 species, mention is made of a number of manuscript scientific names, found in the SNMB register in what appears to be the handwriting of Blasius, who would presumably have proposed these names had he published his findings earlier. Finally comments are given on 7 other species where notes on identifications or the status of records are needed. In a few cases mention is made of other unpublished Mindoro records of these same species which have been brought to our attention.

Notes on selected species

Confirmations or corrections of Mindoro records

Anas crecca

The Platens's record was listed by McGregor (1909) with a query. SNMB contains an eclipse male No 16860, taken 3 November 1890.

Circus melanoleucos

Four correctly identified specimens support the record given by Blasius (1897b). No recent published records have been traced but Mrs LeCroy has kindly drawn our attention to another Mindoro specimen, in the American Museum of Natural History (AMNH), collected on 30 July 1963 at Guimbatos, Bongabong, Mindoro, a somewhat early date for this autumn migrant.

Rostratula benghalensis

Two specimens in SNMB (a male – N.3477 – taken on 21 October 1890, and a female – N.3478 – taken on 15 November 1890) substantiate the listing by Blasius (1897b). Mrs LeCroy has drawn our attention to another specimen (AMNH No 784096) taken at Lake Naujan on 4 August 1963 by T. Oane and J. Ramos.

Charadrius leschenaultii

Of all the species claimed as new to Mindoro by Blasius (1897b) this one cannot now be supported by skins in SNMB; Blasius's (1897a) critical notes, however, seem to preclude an error, and although not since recorded from Mindoro, the record of this species is best accepted.

Numenius madagascariensis

Listed for Mindoro by McGregor & Worcester (1906) but not by McGregor (1909). A SNMB specimen (N.3470) collected on 13 November 1890 substantiates the listing by Blasius (1897b).

Esacus magnirostris

Listed by Blasius (1897b) and with a query by McGregor (1909), the record is supported by a female in SNMB (N.3469) taken on 7 October 1890.

Ceyx erithacus rufidorsum

The SNMB register makes clear that Blasius (1897b) based his listing of *Ceyx melanura* at least partially on specimen Nos 16734, 16735 and 16736 for they are so named therein. We have now identified these 3 skins, plus a fourth (N.3495, from the Nehrkorn Collection), as *C.e. rufidorsum* by comparison with others of this species in the British Museum (Nat. Hist.) (BMNH). This species was collected in Mindoro by Schmacker as reported by Hartert (1891). *Ceyx melanurus* should not, therefore, be included in the Mindoro list.

Alauda gulgula

Specimen No 16807 in the SNMB, collected on 8 September 1890, is new to Mindoro. The original label carries the name *Anthus striolatus* crossed out, and the skin has, in fact, been correctly named in the register. There can be little doubt, however, that this specimen was the basis for Blasius's (1897b) record of *A. striolatus,* a name which is presumed to have been used as a synonym for *Anthus novaeseelandiae,* a species that had in fact been taken earlier in Mindoro by the Steere Expedition.

Ficedula narcissina

Listed by McGregor & Worcester (1906) but omitted by McGregor (1909). Blasius's (1897b) record is substantiated by SNMB No 16770 taken on 31 October 1890. There appear to be no other records from Mindoro.

Manuscript names of Blasius

Gallicolumba (luzonica) platenae

Given the manuscript name *Phlogoenas platenae* by Blasius, and brought into the literature by Hartert (1891), this species was formally described by Salvadori (1893). Three specimens (Nos 16828, 16829 and 16830) are mentioned in the SNMB register as Types – probably in the handwriting of Blasius. A fourth specimen in SNMB (N.3493 from the Nehrkorn Collection) may also have type status.

Centropus steerii

The SNMB register suggests that Blasius gave this species the manuscript name *Pyrrocentor nehrkorni* and that he later synonymised this with *Centropus steerii* when the latter name was published.

Ninox philippensis

Blasius provided the manuscript name *Ninox plateni,* which was published by Hartlaub (1899) although Ogilvie Grant (1896) had earlier described the same form, collected by Whitehead later than by the Platens, as *Ninox mindorensis.* SNMB holds the type of *Ninox plateni* (No 16719, a male taken 19 May 1890) and a pencilled entry in the register suggests that Blasius synonymised this with *Ninox spilonotus* Bourns & Worcester of Cebu.

Parus elegans

For this species too Blasius provided a manuscript name in the SNMB register – *Parus elegans macrorhynchus.*

Dicaeum aeruginosum

For this species Blasius provided the manuscript name *Piprisoma striata* in the register, later adding "=*aeruginosum* Bourns & Worcester".

Additional comments

Pernis ptilorhynchus

A "male", No N.3010 from the Nehrkorn collection, in SNMB is without a collection date, but is from Mindoro. It has been compared with other specimens of this species and with specimens of *P. celebensis steerii,* and appears to be a juvenile female *P. ptilorhynchus orientalis.* Hartert (1891) mentions an earlier Mindoro record from Mt Halcon by Schmacker. Stresemann (1940) did not list this species and Schmacker's skin is apparently not now in Frankfurt, so that it may never be known which species Schmacker took.

Accipiter soloensis

A specimen (SNMB No 16709) was collected by the Platens on 20 September 1890. Subsequently a record was published by Ripley & Rabor (1958), but was not claimed as the first record for Mindoro. Delacour & Mayr (1946) wrote ''encountered chiefly on Luzon and Mindoro'' but the literature at that time included several records for Mindanao and none for Mindoro. In fact a bird taken by Everett in Mindoro on 2 December 1894 (now AMNH No 532718) and listed by Hartert (1895) as *Accipiter manillensis* (a synonym of *A. virgatus)* has recently been reidentified as *A. soloensis* and this may have already been known to Ripley & Rabor (1958).

Rallina eurizonoides

Blasius registered specimen No 16845 in SNMB as *''Rallina tricolor''* but did not list it as a novelty for Mindoro. It proves to be *R. eurizonoides,* which has a confused history as regards Mindoro: it was listed by Bourns & Worcester (1894) but omitted by Worcester & Bourns (1898), only to be listed again by McGregor & Worcester (1906) and by McGregor (1909) based on collections made by himself and Porter.

Cacomantis spp.

Peters (1939) pointed out the sympatry in Basilan of *C. merulinus* and *C. variolosus.* Rand (1951) provided further support for this and began reviewing the older records to determine the extent of occurrence of each species; but the work still remains to be completed. Tentative identifications are given below for specimens said to have been taken by Platen in Mindoro.

Cacomantis merulinus

SNMB No 16740, a male collected 19 October 1890, and SNMB No 16743, a female collected 19 September 1890, are definitely this species.

Cacomantis variolosus

Two SNMB specimens support the listing of this species by Blasius (1897b). No 16741, an immature male of *C.v. sepulcralis,* was taken on 2 June 1890. The other (No 16742), thought to have been a female, is said to have been collected at Calapan, Mindoro on 23 October 1890, and is a good match for a specimen of *C.v. affinis* taken on 17 April in the southern winter in Halmahera (BMNH, BM 1934.10.21.65) and for other birds from Batjan in the Moluccas. Although this migrant could have reached Mindoro, it is known that the Platens collected in Batjan in 1892-94 and a confusion in subsequent labelling cannot be excluded.

Tyto capensis

Although listed from Mindoro by McGregor & Worcester (1906) the record was dropped by McGregor (1909). Three specimens in SNMB substantiate the listing by Blasius (1897b). Another early unpublished specimen from Mindoro is in the BMNH (BM 1912.9.8.24), collected by Mounsey on 26 February 1910. See also Appendix 2.

Ninox scutulata

Blasius (1897b) recorded this species from Mindoro under the name *Ninox macroptera* Blasius, described from the Sangihe Islands by himself (1888d) in a newspaper, copies of which are hard to locate, as discussed by Vaurie (1960). Vaurie can now be shown to have been right in supposing that the name was based on migrants of the Japanese population. The types of *Macroptera* (Nos 13901, 13902, 13903 and 13904 in the SNMB) have been compared with specimens in BMNH. The name *japonica* Temminck & Schlegel 1847 applies to *macroptera,* as it has been shown by Dickinson (1975) that *scutulata* Raffles applies only to Malayan residents and not to migrants. It is not certain that the Mindoro specimen (SNMB No 16722) is *japonica,* its collection date – 25 June 1890 – suggests the resident race *randi,* but the BMNH collection contains inadequate material for a conclusion to be reached.

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Notes on the Collared Petrel *Pterodroma (leucoptera) brevipes*

by Dick Watling

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The Collared Petrel *Pterodroma (leucoptera) brevipes* has been very little studied. Limited mensural data are available (Bourne 1983, Clunie 1976, Loomis 1918, Murphy 1929). Bourne (1981) summarises some of the museum specimens, whilst a summary of all fragmentary records in the literature, including some new records, is to be published (Jenkins in prep.). Information on the biology of the Collared Petrel is needed to help elucidate its taxonomic position within the complex *P. leucoptera* group.

Recent fieldwork on Gau I., Fiji (18°00′S, 179°16′E – see Watling 1985) has enabled additional information to be collected. The voice has been taped and a large live sample examined to record plumage details of this 'polymorphic' species. Twenty-one Collared Petrels were collected and have been deposited as whole specimens at the Fiji Museum. The only other major collections are skins at the American Museum of Natural History (AMNH) – 20 adults and young taken at the nest on Kadavu by the Whitney South Sea Expedition; 6 adults with 2 chicks in the Cambridge University Museum of Zoology (CUMZ), taken from central Vitilevu; 8 specimens at the British Museum (Natural History) (BMNH), 4 from Aneityum, Vanuatu and 4 from Vitilevu. Other minor collections are held at the Australian Museum, 3 specimens from Vitilevu and one unlabelled (W. Boles); 2 specimens at the Liverpool Museum, one from Vitilevu and one from Vanuabalavu ('Lomaloma'), Fiji; 4 specimens at Leiden and one at Paris (W. R. P. Bourne).

Three of Fiji's pioneering ethnographer-zoologists wrote at varying lengths about the Collared Petrel in Fiji in the 1860-70's: Baron Anatole von Hugel (Roth & Hooper in press), Theodore Kleinschmidt (1879) and Eduard Graeffe (1868). It is clear from their accounts that the Collared Petrel was well known and extensively exploited in certain areas. That petrels were once well known, in many communities, is confirmed by the presence of traditional songs/poems/lullabys which either mention or whose subject is exclusively the Rikoriko, Lagio or Kacau, 3 Fijian names for petrels (Watling in prep.). Whilst these poems etc. are still orally perpetuated in some communities, there appears to be no knowledge of nesting petrels except in Kadavu, where they are still exploited in a systematic manner (Watling in prep.). On Vitilevu and Vanualevu, it is doubtful if Collared Petrels still breed because of the depredations of the Mongoose *Herpestes auropunctatus,* introduced in 1873 (but see below), which explains the lack of contemporary knowledge of petrels.

Apart from Fiji, the Collared Petrel is known to breed in Vanuatu (Murphy 1929) and the Cook Islands, where a fledgling was taken on Rarotonga in September 1984 (the skin is deposited at the National Museum, Wellington). Although it is thought to breed in Western Samoa there are no breeding records, whilst in American Samoa, Amerson *et al.* (1982) tentatively record it breeding in Ta'u. Jenkins (1980) records the Collared Petrel at sea in Tongan waters, while Bourne (1974, 1981) indicates the possible presence of a larger form from the Solomons.

TABLE 1

Measurements of Collared Petrels *Pterodroma (leucoptera) brevipes*

	N	Wt.g	Wing	Tail	Tarsus	Middle Toe	Exposed Culmen
Gau m.	8	129	214	103	26.1	35.3	25.5
(range)		116–145	207–219	95–104	24.5–27	32.3–38.5	24.7–26.5
f.	12	140	212	102	26.1	35.0	24.4
(range)		126–158	205–220	98–105	24.1–26.9	33–37	22.8–25.6
imm.[1]	1		188	96	26	35	25
Clunie			212	97	26.9		24.3
(1976[2])		(range)	201–222		24.1–30.6		22.1–26.9
		(n)	16	2	30		28
Murphy	13		218	95	26.5	34	24.3
(1929[3])		(range)	207–226	91–99	26–28	32–35	22–26
Bourne	33		216	98	26.9	32.9	23.6
(1983[4])							

Notes: 1. 'Fledgling', flew from the nest when disturbed; 2. Killed by Peregrine Falcon; 3. May include Vanuatu specimens; 4. Includes some but not distinguishable, AMNH specimens measured by Murphy (1929).

Measurements and Plumage colour

Details are given in Tables 1 & 2. The colour of the underparts of Collared Petrels vary from pure white with no more than dark nuchal patches to an even, dark grey, which is a diagnostic character of *brevipes* (Murphy 1929). Every intergradation between the 2 forms can be found (Plate 1). Although the sample is small (20 collected from Gau + suitably labelled museum skins), analysis by sex and age (breeding *versus* non-breeders) does not determine the degree of melanism. It is possible that separate breeding populations of the

TABLE 2

Ventral plumage colour of Collared Petrels *Pterodroma (leucoptera) brevipes*

	Gau		Kadavu		Vanuatu		Vitilevu	
Description	n	%	n	%	n	%	n	%
1. Pure White	52	37	13	100	1	8	1	8
2. Grey peppering	24	17	—		2	17	5	42
3. Smoky	40	29	—		3	25	4	33
4. Dark Grey	24	17	—		6	50	2	17
Sample sizes	140		13		12		11	

Notes: The Gau birds were examined live. Kadavu – Whitney specimens at AMNH. Vitilevu – von Hugel specimens at CUMZ + 2 Kleinschmidt specimens at AMNH + Australian Mus. specimens. Vanuatu – Whitney specimens at AMNH and BMNH specimens.

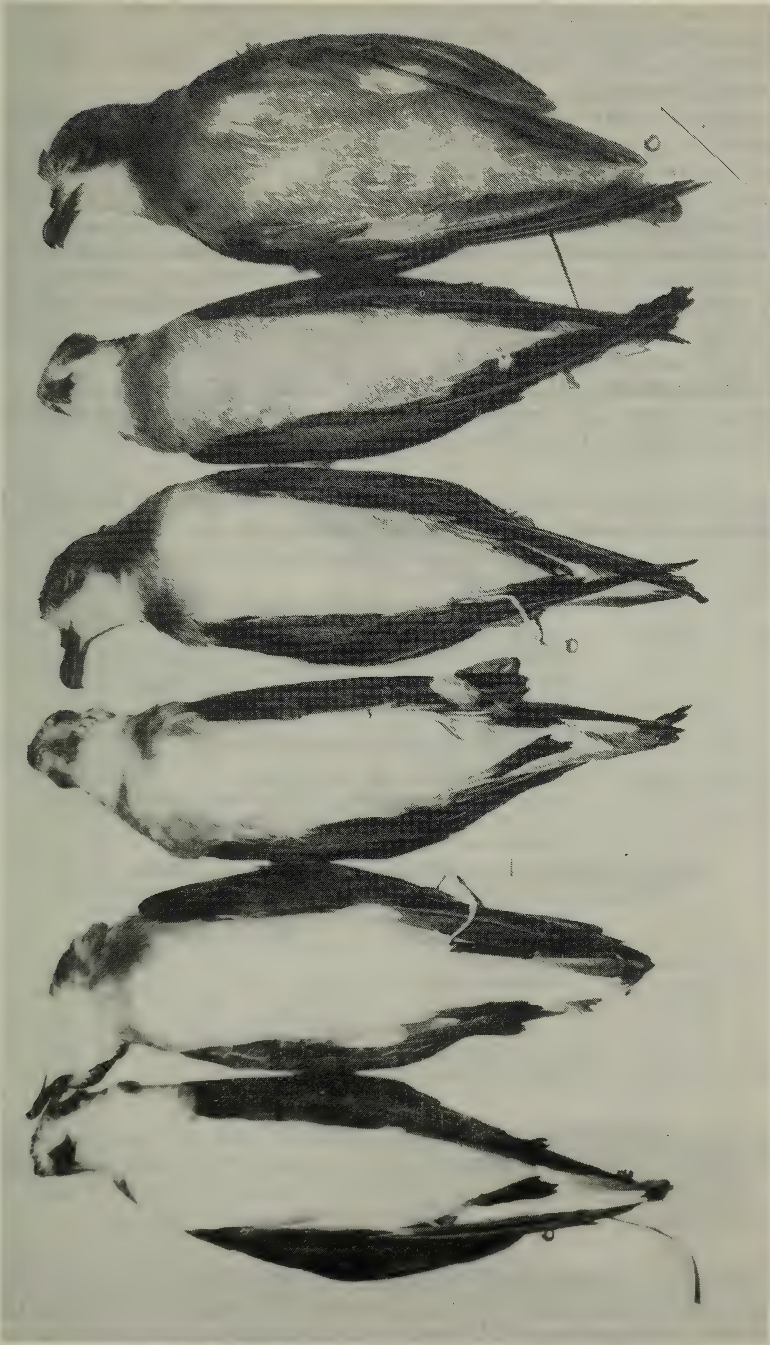

Plate 1. Collared Petrels *Pterodroma (leucoptera) brevipes* from Gau, Fiji showing range of ventral plumage variation. From left to right, categories (as in Table 2): 1; 1 (with dark collar); 2; 2; 3; 4.

Collared Petrel may have different proportions of melanistic birds. All those collected on Kadavu by the Whitney South Sea Expedition are ''white or nearly white-breasted'' birds (Murphy 1929), whilst the Vanuatu skins are predominantly melanistic.

The underwing patterns of all phases are the same, but strongly melanistic birds have the white wing bar showing grey traces and the dark leading edge appears to extend further back. The upperparts of melanistic birds are only slightly darker than white phase individuals. The dark dorsal 'M', a flight identification character, is present on both.

An unbroken dark collar is only found in melanistic birds (categories 3-4, Table 2) and rarely in other individuals. It is not a conspicuous character for identification at sea (pers. obs.), and consequently the common name Collared is misleading.

Tarsus and foot colour

The tarsus and foot of Collared Petrels are bicoloured, with the pale areas varying from a very light grey to an intense blue. The distal parts of the feet, toes and webbing, are black.

Food

Material from the proventriculus and gizzard of the collected birds and 2 regurgitations were identified by Dr Mike Imber (Table 3).

TABLE 3

Food of the Collared Petrel *Pterodroma (leucoptera) brevipes*

Regurgitants	Sample 1	Fish backbone (possibly Myctophid). Cephalopods: 2 large, unequal sized eyeballs (possibly *Histioteuthis* sp.) and remains of c. 3 juv. Ommastrephidae.
	Sample 2	Cephalopods: 2 juv. Ommastrephidae.

Summary of all proventriculus and gizzard contents.

Cephalopods	Many unidentifiable fragmented beaks 13 juv. Ommastrephidae (possibly *Sthenoteuthis oualaniensis)* 1 juv. Ommastrephidae (possibly *Eucleoteuthis* sp.) 1 Histioteuthidae (?) 1 Pelagic octopus
Fish	2 Myctophidae – *Diaphus* sp. or *Lobianchia* sp. 6+ Myctophidae spp. unidentifiable – worn otoliths 1 Scombropidae
Plastic	3 fragments 1 feedstock bead
Pumice	a few fragments

Notes: No Crustacea or Insecta *(Halobates)* were found in the samples. All prey was bioluminescent, except the pelagic octopus and the *Scombrops* sp. fish.

Lice

12 lice from the Collared Petrels were identified by Dr R. L. Palma as 6 male and 6 female *Halipeurus (Halipeurus)* sp. In contrast 4 lice taken from a Fiji Petrel *Pseudobulweria macgillivrayi* at the same time and place were 1 male, 2 female and 1 nymph of *Saemundssonia (Puffinoecus)* sp.

Voice

Recordings of Collared Petrels in flight were made with a Sony TC-D5 Recorder and a JVC M510 Super-directional microphone and analysed on a 6061-B Kay Sona-graph at the University of Canterbury, New Zealand.

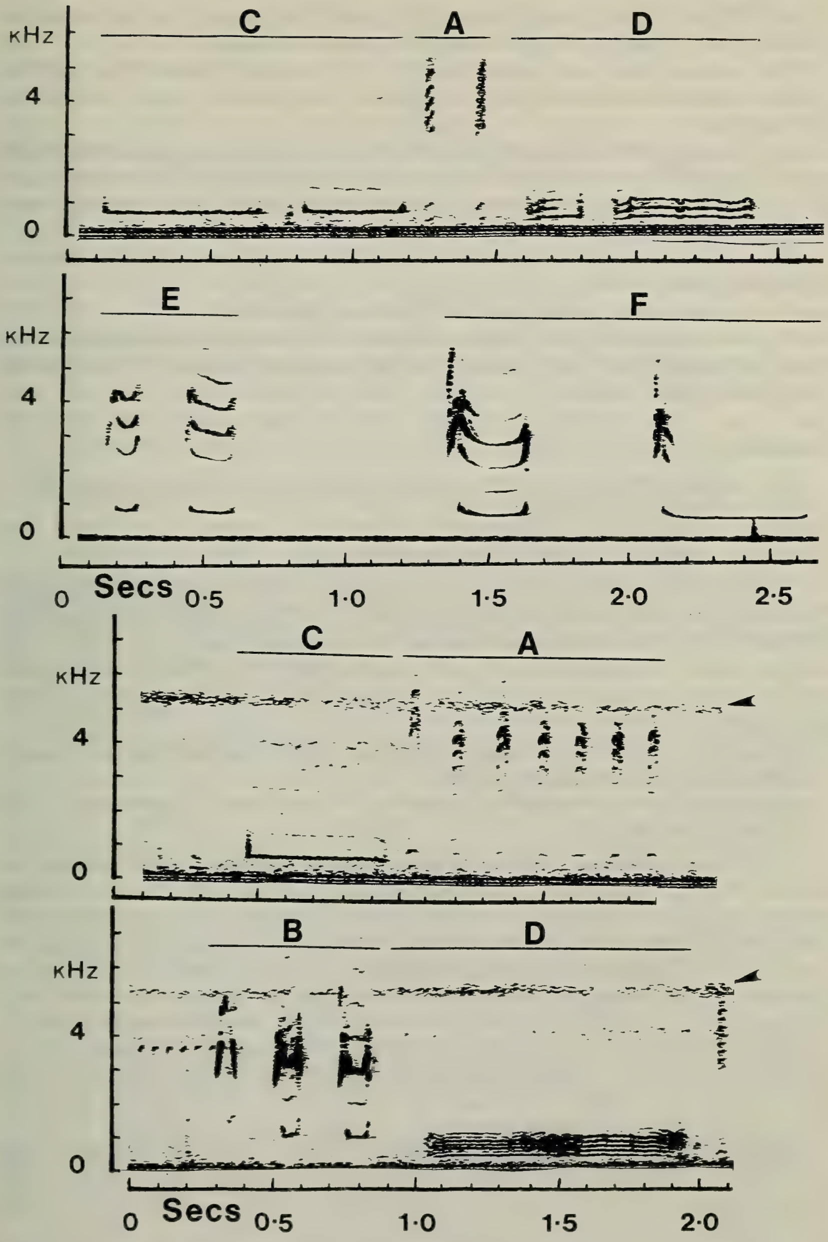

Figure 1. Calls of the Collared Petrel *Pterodroma (leucoptera) brevipes* in flight. A – the staccato *ti-ti-ti;* B – more complex *ti*'s or *qweks;* C – the low moaning *guorr;* D – thick, low purring call; E – the *cher-cher;* F – the more extended *cherr-chewee.* (Arrows indicate insect noise; the very low frequency noise in the sonographs – almost solid basal bar – is generated within the recorder.)

No Collared Petrels were heard calling from the ground, but no nocturnal observations of nesting birds at their burrows were made.

Four distinct calls were identified (Fig. 1). In many respects the calls are similar to some of those used by *P. hypoleuca, P. nigripennis* and *P. inexpectata* (J. Warham).

(1) Most commonly heard was a staccato ''*ti-ti-ti-ti*'', usually consisting of about 6 syllables, but occasionally extending to 12 or more. These notes had a high pitch and were far carrying. A derivative of this call was a more intense and rapid chattering.

(2) A low moan or ''*guorr*'', sometimes given by itself but often in association with ''*ti-ti . . .*''.

(3) A thick, low purring call with distinct harmonics.

(4) A ''*cher, cher*'' or ''*cherr, chewee . . .*'', the latter seeming to result from sustaining the ''*cher*'' note of the former and all apparently based on the ''*ti*'' and ''*gorr*'' calls.

Breeding

The Collared Petrel has been recorded ashore on the following islands:

Gau – presently breeding.

Kadavu – presently breeding.

Ovalau – (Ramsay 1882) probably still breeding.

Vitilevu – doubtfully still breeding because of the introduced mongoose. However, on a wet, misty day in May 1971, F. Clunie found a freshly killed Collared Petrel on a Peregrine Falcon's *Falco peregrinus* eyrie several kilometres inland. In view of von Hugel's observations of day-flying Petrels inland (see below), it is possible that there are Collared Petrels still attempting to breed on Vitilevu.

Vanualevu – doubtfully breeds today, because of the mongoose, but as on Vitilevu, may still attempt to breed.

Vanuabalavu – collected by Layard at ''Lomaloma''; specimen in the Liverpool Museum, UK.

It is probable that the Collared Petrel breeds on several, if not many, other islands in Fiji; Taveuni, in particular, could support a very large breeding population. They have been recorded at sea in Fiji waters in every month of the year, and Bourne (1981) indicated that Collared Petrels probably bred there the year round. However the only specimens or unequivocal descriptions of Collared Petrel young in the nest are from May to August (Graeffe 1868; Kleinschmidt 1879; Murphy 1929; Ramsay 1882; Roth & Hooper in press). A fledgling about to leave the nest was collected on Gau on 3 August 1983. A ''fully grown chick'' caught by a Peregrine Falcon in February (Bourne 1974) had a short wing length (210 mm) but otherwise adult dimensions, and may have been a moulting immature or non-breeder (W. R. P. Bourne).

Whether Collared Petrels are sedentary (Bourne 1983) or migrants is not yet known. The alleged type locality of *P.(l.) brevipes* is near Peter Island, south of the Antarctic Circle, at 95°W 68°S (Murphy 1929), which together with the origin of a Collared Petrel from Wales (Salvin 1891), is questioned by Bourne (1967). These 2 questionable records apart, there are no confirmed sightings or specimens recorded away from the breeding area, though it is worth noting the possible sightings of Meeth & Meeth (1983) between 100°–130°W and 0°–10°S. In contrast *P.l. leucoptera* is thought to migrate to the eastern tropical Pacific when not breeding (Imber & Jenkins 1981), and the *P. brevipes* recorded from there (Murphy 1936) were probably this species (Imber & Jenkins 1981).

On Gau about 20 nests in 3 localities have been found. These 'loose' colonies are consistent with the descriptions of nesting at Narokorokoyawa (Roth & Hooper in press) and on Mt Washington, Kadavu (Correia's Journal Vol. O deposited at the AMNH); but on Tanna, Vanuatu, the Whitney Expedition recorded nests as "solitary on wooded slopes above 333 m". On Gau the nests are at between 100 and 465 m on steep, well forested slopes. A clear canopy was associated with one of the localities, but not with the other 2, which were under closed canopy. The high, often cloud covered ridges of Gau (550-625 m) have been well searched for petrel nests, but none has been found, although their remains have been found there in feral cat scats. So it appears that Collared Petrels nest on steep slopes and generally on the lower ones. Similar sites were used at Narokorokoyawa (Roth & Hooper in press). However, the petrels make display flights over the top ridges, up to and including the summits on Gau (715 m) and on Kadavu (805 m) (Kleinschmidt 1879).

On Gau the Collared Petrels never come ashore during daylight, arriving well after dark. However, at Narokorokoyawa, in the centre of Viti Levu (40 km from the coast), von Hugel describes petrels flying on a wet, misty afternoon (Roth and Hooper in press) and a label on one of his specimens at the CUMZ indicates that it was knocked down in flight with a stick. It is clear from von Hugels description that these birds had not been disturbed from nests but were flying normally in daylight.

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Notes on some birds of northeastern Brazil

by Dante Martins Teixeira, Jorge B. Nacinovic and Marcos S. Tavares

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In the last 7 years we have accumulated records which extend the known distribution of a number of Brazilian birds. These observations are based on the field work performed by the Ornithological Section of Museu Nacional in the residual Atlantic Forests of Alagoas, Pernambuco and Paraiba, northeastern Brazil.

Teixeira & Gonzaga (1983 a, b, 1985) have stressed that the distribution of the avifauna of northeastern Brazilian forests is not homogeneous. It may be said to be formed of 2 groups, one in the highland forests (550 m) and the other in the coastal lowland forests. Preliminary data obtained indicate that the lowland forest avifauna is predominantly Amazonian in composition, whereas the highland forests avifauna differs considerably. The stratified distribution pattern is difficult to interpret, but it is probably related to Quaternary glacial phenomena. As mentioned by Ab'Saber (1977), the dry climate of the latter period (c. 18,000 years ago) restricted forest ranges in South America, and confined them especially to the highlands, and in northeastern Brazil this may explain the existence of a highland endemic avifauna which is more closely related to the species of Atlantic Forests south of the São Francisco River than with the avifauna of the adjacent lowland forests. This is very well marked by the discovery, in the highlands, of several bird species never previously reported north of the São Francisco River, and also by the recently described *Philydor novaesi, Terenura sicki* and *Myrmotherula unicolor snowi,* which seem to be vicariant with *Philydor atricapillus, Terenura maculata* and *Myrmotherula u. unicolor* from southeastern Brazil. Additionally, the penetration through the lowlands of the Amazonian species could be regarded as a more recent phenomenon of forest expansion (c. 8000 years ago), which connected coastal northeastern Brazil with the lower Amazonian drainage.

Specimens in the Museu Nacional ornithological collections are referred to by the initials MN plus the respective catalogue number. Additionally, we also mention specimens in small regional collections. The basic literature on northeastern Brazilian birds is: Berla (1946), Forbes (1881), Hellmayr (1929), Lamm (1948), Meyer de Schauensee (1966, 1970), Pinto (1937, 1940, 1944, 1954, 1961, 1964 and 1978), Schneider (1938) and Sick (1984). English names and sequence of the species follow Meyer de Schauensee (1970).

STRIPE-BACKED BITTERN *Ixobrychus involucris*

Discontinuously distributed in South America. In Brazil, recorded from Rio Grande do Sul north to São Paulo and Rio de Janeiro. From northeastern Brazil, the Museu Nacional houses an adult male (MN 6604) from São Bento, Maranhão (c. 02°40'S, 44°50'W) collected by Snethlage, 14 September 1923, and the Museu de Ciencias Naturais, Recife, Pernambuco, obtained an unsexed specimen (without number) from Propriá, Sergipe (c. 10°13'S, 36°50'W), collected September 1983.

LESSER YELLOW-HEADED VULTURE *Cathartes burrovianus*

Widely distributed in South America, but not hitherto recorded from northeastern Brazil. Rather common in coastal Alagoas and we observed several in the sugar-cane fields, alongside *Cathartes aura* and *Coragyps atratus*. The Museu Nacional obtained one male (MN 33774; gonads 15 x 17 mm, 860 g, 560 mm total length) and two females (MN 33775 and 33776; gonads 15 and 12 mm, 820 and 880 g, 552 and 595 mm total length) from the municipality of São Miguel dos Campos (c. 09°47'S, 36°05'W) southeastern Alagoas, collected April 1984.

SNAIL KITE *Rostrhamus sociabilis*

On 14 April 1984, we observed an adult male in flooded fields of the lower Jequiá River drainage, municipality of São Miguel dos Campos, coastal Alagoas, the first record for northeastern Brazil.

BLACK HAWK-EAGLE *Spizaetus tyrannus*

Recorded in the Atlantic Forests south of the São Francisco River, and also in the Amazonas drainage, but not hitherto from northeastern Brazil. In 1983 and 1984, it was seen several times in the highland forests of Serra Branca, municipality of Murici (c. 09°15'S, 35°50'W), Alagoas.

UNIFORM CRAKE *Amaurolimnas concolor*

Locally distributed in Brazil. Specimens are known from the Amazonas drainage and also from Bahia, Espirito Santo, Rio de Janeiro and São Paulo, southeastern Brazil. We obtained 2 males (MN 33781 and 33782; gonads 6 mm, 133 g, 259 and 266 m total length) from the municipality of São Miguel dos Campos, coastal Alagoas, 24 November 1983, where it seems to be a rather common bird. We observed it several times in the flooded and thickly vegetated parts of the lowland forest remnants of Alagoas.

GREY-BREASTED CRAKE *Laterallus exilis*

An adult female (MN 24881) collected in Usina São José, municipality of Igaraçu, Pernambuco (c. 07°50'S, 34°54'W), northeastern Brazil, 15 May 1945 (*apud* Berla 1946) has frequently been omitted in the South American ornithological literature. The preparation of another specimen, a male (MN 28247), is typical of A. Schneider, and it is not impossible to suppose that it was collected in Porto Quebracho, southwestern Mato Grosso (c. 21°50'S, 57°53'W) around 1940. Recently, *L. exilis* was also recorded from the valley of the Rio Ribeira, southeastern São Paulo (Willis & Oniki 1985).

PAINT-BILLED CRAKE *Neocrex erythrops*

Spottily distributed in South America. Recorded from Amazonian, central and southeastern Brazil. The ornithological collection of Universidade Federal da Paraiba houses an unsexed specimen (No 0005) from Alagoa de Pedra, 5 km south of Esperança (c. 07°01′S, 35°52′W), Paraiba, collected by J. L. B. Albuquerque, 30 April 1981.

RED-SHOULDERED MACAW *Ara nobilis*

In northeastern Brazil, recorded from Maranhão and Piauí (Forshaw 1978). We saw 2 in the residual lowland forests of the municipality of Matriz do Camaragibe, northeastern Alagoas (c. 09°09′S, 35°37′W), 20 May 1984.

PLAIN PARAKEET *Brotogeris tirica*

Known from eastern Brazil (Bahia and southern Goiás to Rio Grande do Sul). Also occurs in northeastern Brazil in both lowland and highland forests. Rather common in Serra Branca, municipality of Murici, Alagoas, whence we obtained an adult female (MN 33804; gonads 8 mm, 63 g, 357 mm total length), 12 May 1984.

SEMICOLLARED NIGHTHAWK *Lurocalis semitorquatus*

Widely distributed in the Amazonas drainage and also in the Atlantic Forests of southeastern Brazil, from Bahia to Rio Grande do Sul. Common in both highland and lowland forests of Alagoas. The Museu Nacional obtained an adult male (MN 33814; gonads 7 mm, 82 g, 288 mm total length), from the municipality of São Miguel dos Campos, collected on 25 April 1984 and a second adult male (MN 33815; gonads 4 mm, 89 g, 230 mm total length), from Serra Branca, municipality of Murici, collected on 7 April 1984.

LESSER NIGHTHAWK *Chordeiles acutipennis*

Unrecorded for northeastern Brazil until we obtained an adult male (MN 33817; gonads 5 mm, 50 g, 210 mm total length) from the municipality of São Miguel dos Campos, Alagoas, 10 November 1983.

BAND-RUMPED SWIFT *Chaetura spinicauda*

Widely distributed in the Amazonia. The specimen obtained by Pinto (1954) in the lowland forests of São Miguel dos Campos, Alagoas, has been omitted in the South American ornithological literature, even by Pinto himself (1978). Rather common in both lowland and highland forests; we obtained an adult male (MN 33826; gonads 4 mm, 17 g, 126 mm total length) from Serra Branca, municipality of Murici, Alagoas, 5 May 1984.

COLLARED TROGON *Trogon collaris*

Widely distributed in Amazonia and also in southeastern Brazilian Atlantic Forests from Bahia to Rio de Janeiro. We obtained an adult female (MN 33852; gonads 9 mm, 53 g, 252 mm total length) from Serra Branca, Municipality of Murici, Alagoas, 11 May 1984. In northeastern Brazil, *T. collaris* seems to be rather uncommon, and it was only observed in the highland forests.

BLACK-THROATED TROGON *Trogon rufus*

Widely distributed in South America. Has been recorded in Amazonia and also in the Atlantic Forests, from Bahia to Rio Grande do Sul, but not in northeastern Brazil until we obtained an adult male (MN 33853; gonads 5 mm, 54 g, 260 mm total length) from Serra Branca, municipality of Murici, Alagoas, 19 November 1983. Like *T. collaris, T. rufus* seems to be rather uncommon in northeastern Brazil, and was only observed in the highland forests.

SCALED ANTBIRD *Drymophila squamata*

Known previously only from the coastal forests of southeastern Brazil, from

Bahia south to Santa Catarina. It also occurs in northeastern Brazil as an endemic species of the highland forests, where it is very common. We obtained 2 adult males (MN 32046, 32047; gonads 3 mm and 1 mm, 10.5 and 11 g, 125 and 140 mm total length) from Serra Branca, municipality of Murici, Alagoas, February 1979.

BLACK-HEADED BERRYEATER *Carpornis melanocephalus*

Only known previously from the coastal portion of southeastern Brazil, from Bahia south to Paraná (Snow 1982), but like *Drymophila squamata* also occurs in northeastern Brazil as an endemic bird of the highland forests, where it is not rare. We obtained an adult male (MN 33904; gonads 5 mm, 66 g, 230 mm total length) from Serra Branca, municipality of Murici, Alagoas, 18 November 1983.

BARE-THROATED BELLBIRD *Procnias nudicollis*

Only known previously from the Atlantic Forests south of the São Francisco River, from Bahia to Rio Grande do Sul, and also in northeastern Argentina and eastern Paraguay. It also occurs in northeastern Brazil as a common bird of the highland forests. In 1984, we obtained an adult male (MN 33906; gonads 3 mm, 163 g, 290 mm total length), an adult female (MN 33907; gonads 12 mm, 158 g, 290 mm total length) and an immature female (MN 33908; gonads 5 mm, 122 g, 265 mm total length) from Serra Branca, municipality of Murici, Alagoas. Another species of the genus, *P. averano,* was also observed in the northeastern Brazilian forests, but is restricted to lowlands, while *P. nudicollis* seems to be an endemic bird of the highland forests. The same pattern of distribution was observed for *P. averano* and *P. alba* in Venezuela, as recorded by Snow (1982).

FOREST ELAENIA *Myiopagis gaimardii*

Widely distributed in Amazonia and central Brazil. On 20 April 1984 we obtained an adult female (MN 33930; gonads 10 mm, 11.5 g, 125 mm total length) from the residual forests of Fazenda do Prata, municipality of São Miguel dos Campos, Alagoas.

WHITE-LORED TYRANNULET *Ornithion inerme*

Recorded from Amazonia and possibly Bahia, southeastern Brazil. We obtained an adult male (MN 33932; gonads 1 mm, 5 g, 91 mm total length), and an adult female (MN 33931; gonads 2 mm, 5.5 g, 91 mm total length), from Fazenda do Prata, municipality of São Miguel dos Campos, Alagoas, 1 November 1983.

SHARPBILL *Oxyruncus cristatus*

Discontinuously distributed. In Brazil, has been recorded in the Amazonas drainage, and also in Atlantic Forests south of the São Francisco River, from Espirito Santo south to Santa Catarina. Also occurs in northeastern Brazil, apparently as an endemic species of highland forests. Rather common in Serra Branca, municipality of Murici, Alagoas, where it was observed in 1984.

CHESTNUT-BELLIED EUPHONIA *Euphonia pectoralis*

Only recorded previously from eastern Brazil (Goiás and Minas Gerais) south to Rio Grande do Sul, eastern Paraguay and Misiones, Argentina. It also occurs in northeastern Brazil as an endemic species of highland forests, and is not rare. We obtained an adult male (MN 33964; gonads 3 mm, 14.5 g, 120 mm total length), and an adult female (MN 33963; gonads 6 mm, 13.5 g, 117 mm total length) from Serra Branca, municipality of Murici, Alagoas, November 1983.

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Notes on Brazilian seabirds, 2

by Dante Martins Teixeira, David Oren and Robin C. Best

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Little is known about seabirds in Brazilian waters. This report follows Teixeira *et al.* (1985) and records specimens in the Museu Nacional (Rio de Janeiro) (MNRJ), the Museu Paraense Emílio Goeldi (Belém) (MPEG) and 2 small regional collections which extend the known distribution of several species. Specimens are referred to by the name of each institution plus the respective catalogue number, if existent. English names and the sequence follow Meyer de Schauensee (1970).

Like almost all information available on seabirds in the Brazilian ornithological literature, the observations are based mainly on specimens deposited on beaches during bad weather. Higher mortality appears to occur along the Brazilian coast during the austral winter, but the specimens collected in 1984 were obtained throughout the year. This may be linked to the unusually severe weather predominant during most of 1984, which continued into the early months of 1985.

HOODED PETREL *Pterodroma incerta*

In Brazilian waters recorded only from the coast of Rio Grande do Sul and Santa Catarina (Murphy 1936, Pinto 1938, Belton 1978, 1984, Sick *et al.* 1981), north to c. 29°S, with a pelagic range to about 20°S (Harrison 1983). In 1984 MNRJ obtained an immature male (MN 33456; gonads 5 x 3 mm, 380 g, 420 mm total length) collected by Luiz P. Gonzaga (10 November) at Barra de Guaratiba, Rio de Janeiro (23°05′S, 43°35′W).

Quite extraordinarily, at least 3 *P. incerta* appeared in eastern Brazilian Amazonia in September 1984 at the lake forming behind the Tucuruí dam on the Rio Tocantins in the state of Pará (03°50′S, 49°45′W). The reservoir began to fill in August 1984 and the water level was still rising in March 1985. One male was collected on 15 September (MPEG 36492) and 2 other individuals on 27 September, only one of which was prepared as a specimen (MPEG 36493; female, ovary 12 x 5 mm, 380 g, 400 mm total length). All specimens were collected by Emílio Dente, and were reported to be in starving condition. Tucururí is at least 400 km from the nearest open sea (Marajó Bay) and over 2000 km north of Rio de Janeiro. Although very surprising, such an inland record is not unheard of for a petrel – Hellmayr & Conover (1948) record a vagrant *P. arminjoniana* from Ithaca, New York State. Nevertheless, the appearance of several individuals is unique, and difficult to interpret. It would seem that regular seasonal movements of this species may take the birds much farther north from their breeding sites in Tristan da Cunha and Gough Island than has heretofore been recognized.

DOVE PRION *Pachyptila desolata*

Recorded in the Atlantic north to the coasts of Rio Grande do Sul, São Paulo, and Rio de Janeiro (Teixeira *et al.* 1985). However, there are at MNRJ a male (MN 33449; gonads 4 x 2 mm, 80 g, 656 mm total length) and a female (MN 33450; ovary 5 x 2 mm, 100 g, 620 mm total length) collected by Sônia Rigueira (July 1984) at Salvador, Bahia (13°00′S, 38°20′W). At least along the southern and southeastern Brazilian coasts, the Dove Prion and especially the Slender-billed Prion *P. belcheri* constitute the largest proportion of dead birds found on beaches after storms. Although pollution along the Brazilian coast is increasing, it seems that such mortality is a natural phenomenon (Teixeira 1985).

CORY'S SHEARWATER *Puffinus diomedea*

Recorded previously only off Bahia (Hellmayr & Conover 1948), Santa Catarina (Sick *et al.* 1981) and Rio Grande do Sul (Belton 1978 and 1984). An unsexed specimen at MNRJ (MN 32403) was collected by H. Nober da Cunha (20 July 1979) at the Restinga de Marambaia, Rio de Janeiro (23°05′S, 43°35′W). There are 2 unsexed birds (without number) in the Museu de Ciências Naturais, Recife, Pernambuco, which were collected (no date recorded) "off the coast, near Fernando de Noronha Island" (03°50′S, 32°24′W).

GREATER SHEARWATER *Puffinus gravis*

Known previously only from Rio Grande do Sul (Pinto 1978, Belton 1978, 1984). A male with small gonads was collected at Búzios, Cabo Frio, Rio de Janeiro (22°45′S, 41°50′W) on 25 January 1985 (MN 33516; gonads 4 x 3 mm, 520 g, 510 mm total length). The ornithological collection of the Federal University of Paraíba also includes an unsexed skin (No 0002) collected 'on the coast' (c. 07°00′S, 34°50′W) by J. L. B. Albuquerque in July 1981.

BLACK-BELLIED STORM-PETREL *Fregetta tropica*

Recorded by Watson *et al.* (1971) off Fernando de Noronha (c. 00°, 30°W) and near São Pedro and São Paulo Rocks (c. 05°S, 30°W). This seems to be the first record for the genus in Brazilian waters – it has not been mentioned in recent Brazilian ornithological literature. (Pinto (1938) has included the White-bellied Storm-petrel *F. grallaria* in his "Catalogo das Aves do Brasil", but apparently there are no substantiated records to support its inclusion in the Brazilian avifauna.)

LEACH'S STORM-PETREL *Oceanodroma leucorhoa*

Known from Brazilian waters in coastal Amapá (Novaes 1974), Pará, Bahia and Rio de Janeiro (Pinto 1978, Teixeira *et al.* 1985). MPEG has an unsexed specimen collected at the fresh water Lago Agua Preta in the Utinga Reserve at Belém, Pará (01°27′S, 48°30′W) in a moribund state on 23 February 1968 (MPEG 28385). The species has frequently been recorded in the lower courses of rivers and at their mouths (Blake 1977); this seems to be the first record at an inland fresh water lake.

GREAT SKUA *Catharacta skua*

According to Cramp & Simmons (1983), the nominate race of the Great Skua ranges south "at least to Brazil . . . but southern limits poorly known due to other races in South Atlantic". MPEG houses a female *C.s. skua* collected in the municipality of Maracanã, Pará (c. 01°00′S, 47°30′W) on 3 January 1975 (MPEG 30875).

PARASITIC JAEGER *Stercorarius parasiticus*

The wide-ranging Parasitic Jaeger has been recorded from the interior of Brazil in Roraima, and also in coastal Rio Grande do Sul and Rio de Janeiro as a regular seasonal visitor (Blake 1977, Belton 1984, Sick 1968). MPEG has 2 specimens, one a juvenile light-phase, female, from Roraima, collected at Lago Curirú (=Lago Curimaú?, 00°10′S, 61°50′W) on 1 August 1964 by Antonio F. Netto (MPEG 31350); and Emilio Dente collected a juvenile dark-phase, male, with testes 5 x 3 mm, at the lake forming behind the Tucuruí dam on the Rio Tocantins in Pará (03°50′S, 49°45′W) on 12 December 1984 (MPEG 36558), which weighed 355 g and measured 470 mm total length. MNRJ has 2 skins from Guanabara Bay, Rio de Janeiro: one an unsexed juvenile light-phase (MN 31959), collected on 4 April 1978 by Teixeira and Gonzaga, and a dark-phase female (MN 33270), with small ovary (9 mm), collected on 10 May 1983 by Teixeira, Norma C. Maciel and J. B. Nacinovic, which weighed 480 g and measured 425 mm total length.

LEAST TERN *Sterna albifrons*

Although only recorded in Brazil along the northern coast from Amapá to Piauí, there is an unsexed specimen at MNRJ (MN 18846) which was collected by Fonseca and Travassos (no date) at Angra dos Reis, Rio de Janeiro

(23°00′S, 44°20′W); the species has also been recorded from Rio Grande do Sul (Ronaldo Novelli) and from Buenos Aires, Argentina (Blake 1977, Olrog 1978). Perhaps this tern occurs only very occasionally in such southern waters, but there may have been field misidentifications involving the very similar Yellow-billed Tern *S. superciliaris,* a rather common bird on these coasts.

CAYENNE TERN *Sterna eurygnatha*

The movements of the Cayenne Tern along the Brazilian coast are poorly understood (Harrison 1983). In early April 1983 mixed flocks of Royal Terns *S. maxima* and Cayenne Tern appeared at Algodoal, municipality of Maracanã, Pará (1°00′S, 47°35′W). Cayenne Terns constituted about 15% of the individuals in these flocks, and 2 males were collected on 9 April (MPEG 34848 and 34849). The species has not been observed at this site at other times of the year.

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On the equatorial populations of *Halcyon albiventris* (Scopoli)

by P. A. Clancey

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The Afrotropical Brown-hooded Kingfisher *Halcyon albiventris* (Scopoli) is one of the commoner non-piscivorous savanna-haunting kingfishers occurring to the east and south of the Lower Guinea Forest, some 5 subspecies being currently recognised. While most of the subspecies are in the main largely sedentary, 2 of the southern forms have been established as being migratory to a certain extent.

Variation of subspecific import in the present species affects general size, levels of colour saturation and the nature of the ventral surface, which may be either plain or streaked with dark brown in association with geography. During the course of work on the compilation of his important *Check-list of Angolan Birds* of 1963, Traylor (1960) was counselled by Mrs B. P. Hall, at the time associated with the British Museum (Nat. Hist.) (BMNH), and by the present author to place the Angolan population with the subspecies *H.a. prentissgrayi* Bowen, 1929: forest above Meru, Mt Kenya, Kenya, rather than with the eastern littoral form *H.a. orientalis* Peters, 1868: Inhambane, southern Mozambique, which arrangement was favoured up to that time. This resulted in *H.a. prentissgrayi* being considered as ranging from the interior of Kenya and Tanzania and Malaŵi, west north of the Zambesi R. to eastern and southern Zaïre, Zambia, Angola, the Republic of Congo, Cabinda (Angola) and Gabon. In his recent work on Angolan birds, Rosa Pinto (1983) follows Traylor in treating the local population as *H.a. prentissgrayi.*

A study of the material available in the BMNH and the Musée Royal de l'Afrique Centrale, Tervuren, in the autumn of 1985 shows that *prentissgrayi* is a composite taxon, confirming Traylor's 1960 comment that "It is tempting to divide *prentissgrayi* into three races", though in the end he finally decided to recognise a single heterogeneous subspecies *(prentissgrayi).* I believe the problem presented by the heterogeneity of the said subspecies can be resolved by splitting it into western and eastern blocks of populations, restricting *H.a. prentissgrayi* to the high interior of Kenya (north to Mt Kenya), south through the Tanzanian hinterland to Malaŵi and the high west of northern Mozambique. The populations occurring to the west of this in the equatorial belt of the continent are substantially more saturated and warm brownish, less earthen coloured, than in the case of females of the Kenyan form, while the males exhibit a rusty overlay to the hind crown and nape not present in the latter. It seems desirable to recognise these established characteristics of the western elements by proposing

Halcyon albiventris hylophila subsp. nov.

Type. ♂, adult. 25 km N (and 15 km E) of Duqúe de Bragança, Malanje, Angola. 26 May 1954. Collected by Gerd Heinrich. In the collection of the Durban Natural History Museum, D.M. Reg. No 14146. (*Ex* coll. Chicago Nat. Hist. Mus., U.S.A. (Reg. No 22069)).

Description. Differs from *H.a. prentissgrayi,* described from Kenya, in the male having the entire pileum darker, the feathers of the hind crown and nape markedly fringed with rust-colour, imparting a reddish wash. Also with the light hind-neck bar more tinged with rust-colour. In worn dress, the head-top is strikingly darker.

Female more sharply differentiated than the male, having the pileum, mantle and scapulars a more saturated and redder brown, the mantle warm Olive-Brown (Ridgway 1912), *versus* cold Mummy Brown in *prentissgrayi.* Similar in size.

Measurements (mm). Wings (flattened) of 12 ♂♂ from Zaïre 103–110 (105.7), SD 2.25; wings of 12 ♀♀ 101–108 (104.4), SD 2.16.

Material examined. 50. *Cabinda (Angola)* 1: Landana; *Angola* 6: Dalatando (Ndala Tando); near Duqúe de Bragança; 30 km S of Gabela; Luhanda; Leba (15°05′S, 13°15′E); near Luacano (11°15′S, 21°40′E); *Zaïre* 38: Kinshasa (Leopoldville); Kambove; Lubumbashi (Elizabethville); Lukafu, Shaba (10°31′S, 27°33′E); Bunkeya, Shaba (10°24′S, 26°58′E); Kipopo (? Shaba); Kasaji, Shaba (10°23′S, 23°28′E); Baudouinville, L. Tanganika; etc. *Zambia* 6: Mwinilunga; Nasanga; Mpika district. Also examined, 25 *H.a. prentissgrayi* and c. 60 *H.a. orientalis.*

Range. Southern Gabon, the Republic of Congo, Angola on the plateau, southern Zaïre (east and south of the Lower Guinea Forest, east to Shaba and Kivu), and western and northern Zambia. Intergrades to the east of the range as given with *prentissgrayi,* as shown by material from Baudouinville on L. Tanganika, Zaïre.

Measurements (mm) of the Type: Wing 101, culmen from base 46.5, tarsus 15.5, tail 60.

Etymology. Hylophila, Greek, favouring or affecting woods.

Remarks. It is of import to note that Bowen (1929) based his *H.a. prentissgrayi* on a single ♂ specimen. East of the range of this subspecies as now established, *H.a. orientalis* is distributed along the eastern African lowlands from Mozambique to the north of the lower Limpopo R. to the coast of Kenya, extending some way into the interior in the valley of the Zambesi R. To the north of this it is replaced by *H.a. erlangeri* Neumann, 1908: Bardera, southwestern Somalia, which is similar in colouration to *orientalis* but is smaller. Material of this localised taxon was not available to me, but Bowen gives its wings as 92–97 mm in both sexes.

The 2 southern African forms: *H.a. albiventris* (Scopoli), 1786: Cape Province, and *H.a. vociferans* Clancey, 1952: Ingwavuma R., northeastern Zululand, are larger than the more northerly races and have the ventral surfaces heavily streaked with brown, the former the more heavily streaked of the two.

Acknowledgements: For the provision of facilities at the British Museum (Nat. Hist.), Tring, I am grateful to Mr P. R. Colston of the staff. Similar assistance at Tervuren was provided by Dr M. Louette and in South Africa, at the Durban Natural History Museum, by Dr J. M. Mendelsohn. To those named I tender my thanks.

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The eastern and northeastern African subspecies of *Anthus similis* Jerdon

by P. A. Clancey

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Resulting from the recent contribution by Clancey (1985) culminating in the recognition of the miombo-based Woodland Pipit *Anthus nyassae* Neumann (with subspecies *nyassae, schoutedeni* and *frondicolus)* as a species discrete from the wide-ranging steppe and montane orientated Longbilled Pipit *A. similis,* with which it was previously linked subspecifically in the Afrotropics, the last named pipit is now seen as comprising 2 spatially remote assemblages, their ranges sundered by populations of *nyassae,* and, in the east, by large tracts of country untenanted by either species. In the Afrotropics 13 races of *similis* occur.

Variation in the southern populations of *similis* is now well-established, following Clancey (1956, 1964, 1985), but recent study of the eastern and northeastern populations on material in museums in Europe and Africa shows that the races of this region as outlined by White in *Peters'* (1960), Hall (1961) and the more recent checklist of the birds of much of the area (Britton *et al.* (1980)) are in urgent need of revision. The arrangement of the populations currently adopted appears to have been arrived at piecemeal rather than as the result of an overall survey.

In the region concerned, variation in the Longbilled Pipit affects general size, the colour and levels of saturation over the dorsum and the intensity of its shaft-streaking, and on the underside the degree and extent of buffiness in fresh condition and of the breast streaking. Large-sized birds, those with wings in ♂♂ 96–105, ♀♀ 90–96 mm, extend from southeastern and eastern Zaïre, Rwanda and Burundi and northern and northeastern Tanzania to the interior of Kenya, Ethiopia (including Eritrea) and the southeastern Sudan. Birds of comparable dimensions are present in southwestern Saudi Arabia in Asir Tihama, south to North Yemen, being replaced by rather smaller representatives in South Yemen, (including the Hadramaut) and south of the Gulf of Aden by a like population in Somalia, these last with wings in ♂♂ 93–99.5, ♀♀ 85–91.5 mm. In association with increased aridity, the Darfur, Sudan, population is also demonstrably small with wings in ♂♂ 94–99, ♀♀ 87–92 mm.

Much of the criticism to be found with the current arrangement of the eastern and northeastern African populations into subspecies centres on other workers' assessments of the variation occurring in the birds of the Ethiopian highlands. Specimens of this relatively high rainfall population are saturated above, the blackish brown dorsal shaft-streaking broad, the individual feathers fringed dull olivaceous tawny. Below, the surface is deep, warm buff, darkest over the breast and sides, the former streaked with dark brown. Populations comparable to those of the highlands of Ethiopia, but showing constant minor differences of their own, are present in southwestern Saudi Arabia and North Yemen, and through Kenya to the north of Tanzania, Uganda and the eastern limits of Zaïre. The small-sized South Yemen and Somali birds alluded to earlier are paler and more greyish vinaceous and less streaked dorsally than the foregoing. Ventrally, they are more vinaceous and less buffy, with the forethroat and belly whiter. Two other populations differ sharply from those forming the eastern Zaïre/Uganda and northern Tanzania – Eritrea/southwestern Arabian axis, the first being the isolated Darfur, western Sudan, population. This isolate is lightly streaked and deep tawny-buff over the upperparts, and below is a bright clear buff with obsolete pectoral streaking. As in the case of the South Yemen and Somali populations, the size is small, as already shown.

In the Ankole/Kigezi region of southwestern Uganda a shift to a plainer and more greyish and less strongly striated dorsal surface and whiter, less buffy, ventral parts is to be found, such birds extending southwards through Rwanda and Burundi to southeastern Zaïre. White (1957), noting a segment of this variation, described the race *A.s. hallae* on a small sample of largely moulting juveniles from southwestern Uganda without giving consideration to the contiguous *A.s. dewittei,* named years earlier by Chapin. This was a major oversight, as I now find that *hallae* is the same as *dewittei,* and accordingly merge the 2 taxa in the arrangement of the populations proposed below. It is unfortunate that *hallae* has been widely taken into the literature, including the continuation of *Peters' Check-List,* but its discreteness from *dewittei* has only very recently been queried (Clancey 1985).

While levels of plumage saturation are, in the main, correlated with variation in precipitation, a like correlation between environment and general size is less clear cut. As shown, size is seen to decline in the south of the Arabian Peninsula and Somalia, and on Socotra, in association with conditions of increasing aridity, as they do in Darfur, in Sudan. In contrast with these trends, one finds that in the case of the Aïr (Asben), Niger, population, size is again every bit as large as in the case of the mesic populations of northeastern Africa.

The Longbilled Pipit populations of eastern and northeastern Africa can now be arranged in the following subspecies:

(a) **Anthus similis hararensis** Neumann
Anthus nicholsoni hararensis Neumann, *Journ. f. Ornith.,* liv (1906), p. 233: Abu Bekr, near Harar, southeastern Ethiopia.
Synonyms: *Anthus nicholsoni longirostris* Neumann, 1905; Gardulla, L. Abaya, Ethiopia.
Anthus similis neumannianus Hartert & Collin, 1927.
New name for *A.n. longirostris* Neumann pre-occupied.

Upper-parts heavily streaked with blackish brown, the feathers edged Buckthorn Brown (Ridgway 1912). Breast and sides deep Warm Buff, streaked on breast with dark brown; forethroat and belly centre Light Buff.

Wings (mm) of 11 ♂♂, 95–103 (99.0), SD 2.74; of 6 ♀♀, 92.5–96 (94.1), SD 1.21.

Range. Ethiopian highlands except for extreme northeast in Eritrea and Tigré. In the south to the Kenyan border at Mega and Yavello, and east to Harar.

(b) **Anthus similis arabicus** Hartert
Anthus sordidus arabicus Hartert, *Novit. Zool.* xxiv (1917), p. 457: Menakha, North Yemen.

Less saturated above than *hararensis* and with the shaft-streaking browner, less blackish, the fringing less strongly ochraceous. Similar in size.

Wings (mm) of 6 African ♂♂, 96–105 (99.5), SD 3.85; of 1 ♀, 93. Wings of 7 Arabian and Yemeni ♂♂, 93.5–99 (96.9), SD 1.69; of 6 ♀♀, 88–93 (90.2), SD 2.04.

Range. Red Sea hills of southeastern Sudan (at Erkowit), south to Eritrea and Tigré, Ethiopia, and the southwestern Arabian Peninsula from Asir Tihama, Saudi Arabia, south to North Yemen, south of which it intergrades with *A.s. nivescens.*

(c) **Anthus similis chyuluensis** van Someren
Anthus similis chyuluensis van Someren, *Journ. E. Afr. and Ug. Nat. Hist. Soc.* xiv (1939), p. 57: Chyulu Hills, southeastern Kenya.

Similar to *A.s. hararensis* on the dorsal surface, differing below in having the entire forethroat and belly surfaces much lighter (Pale Pinkish Buff, *versus* Light Buff). Alike in size.

Wings (mm) of 17 ♂♂, 98–104.5 (100.3), SD 1.97; of 10 ♀♀, 90–96.5 (93.1), SD 2.48.

Range. The interior of Kenya from Lodwar, Lake Turkana and Marsabit southwards, reaching the Chyulu and Taita Hills in the southeast. Extends to northeastern and northern Tanzania between the Serengeti National Park and Paré Mtns, and locally through Uganda to the north of Lake Victoria. In the north reaches the Kidepo Valley, and in the west the highlands west of Lakes George and Edward (Kimboko in Zaïre). Intergrades narrowly with *A.s. dewittei* to the southwest of its range.

Remarks. Britton *et al.* (1980) list the species from Lamu on the northern coast of Kenya. The form occurring there is unknown but may be *A.s. nivescens,* which was described from further along the coast at Chisimoio (Kismayu) in Somalia. With the restriction of the use of the name *A.s. hararensis* to the birds breeding in the moist highlands of Ethiopia and the sinking of *A.s. hallae* into the synonymy of *A.s. dewittei,* the only available name in the literature for the Kenya/Uganda and northern Tanzanian highlands elements is van Someren's *A.s. chyuluensis.*

(d) **Anthus similis nivescens** Reichenow
Anthus nivescens Reichenow, *Ornith. Monatsber.* xiii (1905), p. 179: Chisimoio (Kismayu), southern Somalia.

Differs from the continuous *A.s. hararensis* in being less heavily streaked on the upper-parts, the feather edges paler and greyer. Lighter, somewhat vinaceous tinged, below, not strongly suffused with buff, the forethroat and belly whiter. Size ranging smaller, most marked in the female.

Wings (mm) of 11 ♂♂, 93–99.5 (95.3), SD 1.95; of 11 ♀♀, 85–91.5 (88.5), SD 1.94 (Somali specimens).

Range. Somalia, with the bulk of records from the heights of the northern escarpment country (east as far as Medishe), south locally in the west to southwestern Somalia. Perhaps locally to adjacent Kenya, as the species is listed for Lamu. The present race also occurs in the south of North Yemen (at Taizz) and in South Yemen in the Amiri highlands east to the western Hadramaut.

Remarks. The type-locality of this form is a most unlikely one for a species associated with steppe-like conditions and broken terrain. The type was taken by Carlo von Erlanger on 10 July 1901 (Reichenow 1905).

(e) **Anthus similis jebelmarrae** Lynes
Anthus sordidus jebelmarrae Lynes, *Bull. Brit. Orn. Cl.* xli (1920), p. 16: Jebel Marra, Darfur, western Sudan.

Plainer and less strongly streaked dorsally and more tawny-buff over entire upper-parts and wings and tail than races occurring to the east *(arabicus* and *hararensis).* Below, bright clear buff, the pectoral streaking obsolete, though where present restricted to the sides. Size smaller.

Wings (mm) of 12 ♂♂, 94–99 (96.5), SD 1.89; of 10 ♀♀, 87–92 (89.5), SD 1.95.

Range. Confined to the highlands of Darfur in the western Sudan.

(f) **Anthus similis dewittei** Chapin
Anthus similis dewittei Chapin, *Rev. Zool. Bot. Afr.* xxiv (1937), p. 344: Kasiki, Marungu, southeastern Shaba, Zaïre, at 2200 m a.s.l.
Synonym: Anthus similis hallae White, 1957: L. Karange, Ankole, southwestern Uganda.

Plainer, less boldly streaked, and more greyish olive, less reddish or ochraceous, over the upper-parts than *A.s. chyuluensis.* Below dull whitish with the lower fore-throat and breast heavily streaked with greyish brown. Similar in size.

Wings (mm) of 4 ♂♂, 95–100 (96.7), SD 2.21; of 8 ♀♀, 91–96 (92.6), SD 1.62.

Range. The Marungu Highlands of southeastern Shaba, Zaïre, extending to the northern end of L. Tanganyika, thence east of the Rift to Rwanda and Burundi and the Ankole/Kigezi region of southwestern Uganda.

Remarks. The type and 2 paratypes from Kasiki, in Marungu, in the Musée Royal de l'Afrique Centrale, Tervuren, were examined. The wing of the ♂ type measured 100 mm. Other specimens of this taxon at Tervuren were from Nyanza on L. Tanganika, Luntikulu at 1250 m and Lyapenda at 1800 m a.s.l., while a single ♀ from Bururi, Urundi, was also seen. At the British Museum (Nat. Hist.), Tring, the type and paratypes of *A.s. hallae* were studied. The type is a juvenile in moult to first-year dress, the wing 95 mm. Two other paratypes are also young, moulting birds, while a further specimen is an intergrade *dewittei* ⪥ *chyuluensis.* None of this was revealed in the original description of *hallae* (White 1957).

Other subspecies

Other subspecies of *A. similis* distributed peripherally, but widely detached from the 6 races admitted above, may be commented on in brief here.

A.s. asbenaicus Rothschild, 1920: Mt Baguézane, Aïr, Niger, is large sized as in the races (a), (b), (c) and (f) above, but is paler and less reddish than its nearest ally *A.s. jebelmarrae* of Darfur. It is, as far as is known, restricted to Aïr in Niger. Off the coast of the Horn of Africa the insular *A.s. sokotrae* Hartert, 1917: Alilo Pass, Socotra, is confined to the said island. This form is heavily streaked above, but lacks the reddish nuance present in the majority of the mainland races dealt with here. Below, the entire surface is whitish and heavily streaked with dark brown, while the size is as in *A.s. nivescens.*

Study of the variation in *A. similis* in the south of the Arabian Peninsula reveals that not all the populations are referable to *A.s. arabicus* as presently understood, and that in addition to *A.s. nivescens* (as above), *A.s. decaptus* Meinertzhagen, 1920: Rud-i-Taman, Iranian Baluchistan, must now be listed as the race occurring in Muscat and Oman and the Trucial States. This taxon is plainer and still greyer above than *A.s. nivescens,* buffier below, and is longer winged and tailed (wings in ♂♂, 98–104, ♀♀ 92–97 mm).

In the case of the West African *A.(s.) bannermani* Bates, 1930: Birwa Peak, Sierra Leone, described as a race of *A. richardi* Vieillot, further consideration of its status suggests that it lies very close in both colouration and morphology to *A. latistriatus* Jackson, 1899: Kavirondo, southwestern Kenya, as defined recently in Clancey (1984 (1985) and 1985), and is probably better associated with this complex than with any other, becoming *A.l. bannermani.* The case will be argued in depth elsewhere.

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The holotype of the Laysan Finch *Telespiza cantans* Wilson (Drepanidini)

by Storrs L. Olson and Helen F. James

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The finch of Laysan Island in the northwestern Hawaiian chain has throughout most of its history been recognized under the specific name *Telespiza cantans,* proposed by Wilson (1890), who named the species on a single living specimen that he had in captivity at the time. However, because this form was originally erroneously attributed to Midway Island (Wilson 1890), and because it has been suggested by Munro (1944) that Wilson's specimen came from Nihoa Island, where a resident population of finch was later described under the name *Telespiza ultima* Bryan (1917), the identity of Wilson's original specimen assumes considerable importance. Banks & Laybourne (1977) attempted to locate the holotype in the repositories in England and North America where it might logically have been expected, but they were unsuccessful. Although Banko (1979: 55) cryptically mentioned that Wilson's specimen had "apparently [been] accessioned by a European museum in 1894", he did not elaborate and instead listed the "type" as being in the American Museum of Natural History (p. 56), which refers, however, to the type of the junior synonym *Telespyza flavissima* Rothschild, 1892. On a tour of European museums in 1985, we identified what is certainly the holotypical specimen of *Telespiza cantans* in the Rijksmuseum van Natuurlijke Historie in Leiden and we report our results herewith.

Wilson's (1890) original description introduced several errors apart from the apparent type locality. In the text his new genus was given as *Telespyza,* which Rothschild (1893) regarded as an incorrect transliteration and emended to *Telespiza,* a spelling that most, though not all, subsequent authors employed. Banks & Laybourne (1977) regarded this as an unjustified emendation and resurrected the spelling *Telespyza.* It has gone unremarked, however, that the plate accompanying Wilson's description (Plate IX, by J. G. Keulemans) is captioned *"Telespiza cantans"* and that the species is indexed under this spelling in the same volume of *Ibis.* Wilson himself never used the erroneous *"Telespyza"* again (e.g. Wilson & Evans 1899). Because both orthographies occur with the original description, *Telespyza* can be regarded as a printer's error. Therefore, *Telespiza* would be the correct spelling if one were to recognize this genus as distinct from *Psittirostra* Temminck (which we do not).

The specimen in Wilson's possession, upon which the original description was based, was part of a shipment of about 60 birds that had been brought to Honolulu in January 1889, allegedly from Midway. Wilson took the living bird with him to England, where he described and figured it, but as noted by Banks & Laybourne (1977: 347), his measurements are too large for either of the living species of *Telespiza.* They identified the bird in Wilson's plate as "an immature male in first winter aspect, of the Laysan population". Because Palmer, in 1891, found finches abundant on Laysan but encountered no land birds of any kind on Midway, it was assumed that Wilson's bird must have come from Laysan (Rothschild 1892, 1893), this revised type locality having been accepted by most authors since then. On the basis of anecdotal information recalled half a century later, Munro (1944) suggested that Wilson's specimen actually came from Nihoa, in which case the name *cantans* would have to apply to the Nihoa birds and Rothschild's (1892) synonymized name *flavissima* would have to be resurrected for the Laysan bird.

The specimen in Leiden that we have identified as the holotype of *Telespiza cantans* (RMNH Specimen No 1) was purchased from Scott Wilson in 1894, as noticed in the annual report of the Rijksmuseum (Jentink 1894), and was catalogued in April of that year. At some time in the history of the specimen, the tail was dislodged and tied to the feet and it now lacks some of the rectrices. The specimen is labelled as a female but it is not certain whether this was based on plumage or dissection. Unfortunately, there is no original label, such labels having almost invariably been removed from the specimens in the Leiden museum, mainly by E. D. van Oort (G. F. Mees pers. comm.).

Comparison of this specimen with Wilson's plate shows the two to correspond very closely, given some licence on the part of artist and lithographer. In the specimen the yellowish on the top of the head is more extensive and the greyish somewhat less so than depicted, and the plate considerably exaggerates the spots on the flanks. But both the specimen and the plate differ from practically all specimens of the Laysan Finch in museum collections in the very brownish cast and conspicuously unworn and unfaded state of the plumage. Because of the harsh, bright environment of Laysan, wild-taken birds, even in relatively fresh plumage, usually show fading and wear. Such plumage as seen in the Leiden specimen would be unexpected except in a specimen that had passed through at least one moult in captivity. The facts that the Leiden specimen came from Wilson, that it must have been in captivity for some time prior to its preparation as a skin, that we have found no other specimens of this species attributable to Wilson in any museum, that it is unlikely that Wilson would have obtained additional captive specimens of this species subsequent to his departure from the Hawaiian islands in 1889, and that the specimen closely matches the distinctive bird figured in the original description, all add up to sufficient evidence to conclude that this is indeed the holotype of *Telespiza cantans.*

This specimen is clearly a representative of the larger of the 2 existing species of "*Telespiza*". Our own measurements of the wing length (80.6 mm) and tarsal length (23.9 mm) are outside the maxima recorded for *T. ultima* and are within the size range of either sex of the Laysan Finch (Banks & Laybourne 1977). In addition, the plumage is not that of the darker and more heavily streaked *T. ultima.* Regardless of the provenance of the holotype, the name *Telespiza cantans* may now be said with certainty to apply to the species of finch known historically from Laysan Island and not to the finch of Nihoa.

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On the validity of breeding records for Long-toed Plover *Vanellus crassirostris* in South Africa

by W. R. J. Dean

Received 9 December 1985

McLachlan & Liversidge (1957) give "records [of breeding] from St. Lucia, October 1934 and Southern Rhodesia [now Zimbabwe], Sept. 22nd, in the Bell-Marley collection" for the Long-toed Plover *Vanellus crassirostris.* The October record refers to a single egg, at present in the Transvaal Museum, catalogued TM 34416 (formerly TM 3658) and collected by H. W. Bell-Marley, whose collection was acquired by the Transvaal Museum some years ago. The egg or eggs collected 22 September in Zimbabwe are not in the collection and there is no record of their data. This particular record has been omitted from subsequent revisions of Roberts' Birds of South Africa (McLachlan & Liversidge 1970, 1978) and was discounted by Irwin (1977).

While cataloguing and sorting the various egg collections in the Transvaal Museum, I was able to examine critically the October 1934 egg and accompanying data. This breeding record has become entrenched in the literature as a definite record of *V. crassirostris* breeding in South Africa. The purpose of this note is to point out that the single egg in the Transvaal Museum provides no authentic data for such a breeding record.

The label accompanying the egg states, in Bell-Marley's handwriting:

> "? 136. *Hemiparra leucoptera.* Longtoed Plover. St. Lucia Lake, N.Z. 29-10-1934. Only saw one bird feeding on side of a marsh on Frylings [Feylings?] Flats – the nest was close by or near (*sic*) dropping of hippo – no materials egg laid in a rut, fresh."

A note in Dr A. Roberts writing gives the size of the egg as 40.0 x 27.3 mm. The egg in the Transvaal Museum, marked TM 3658 (old access no) has the same measurements and has a brownish-buff ground colour, speckled and spotted with dark brown; it is pale compared with authentic Long-toed Plover eggs, which usually have an olive-brown, greyish-green or greenish-khaki ground colour, heavily blotched, or blotched and spotted, with dark brown over pale grey shell marks and measuring (in 5 authentic eggs from Angola and Zambia) 42.5–45.0 x 29.6–31.0 mm. The nest is typically a pad of water plants, built up in shallow water or on floating water plants; rarely is it a scrape in soil or mud.

The question mark on the collectors label suggests that the collector was himself in doubt about the identity of the egg, and this, coupled with the small size of the egg, its poor resemblance to authentic *V. crassirostris* eggs, the atypical nest and that no bird was seen on the nest, makes this record highly suspect. It should not be used as supporting evidence for the breeding of this plover in South Africa. Both Brooke (1984) and Maclean (1985) do not accept the record, but McLachlan & Liversidge (1957, 1970, 1978), Dean (1971), Cyrus & Robson (1980) and Johnsgard (1981) all repeat the same breeding record. Johnsgard also repeats the 22 September Zimbabwe record.

It is, in fact, doubtful whether *V. crassirostris* does breed in South Africa. It has been recorded only in northeastern Natal north of 28°S and east of 32°E and there are no records of it between the Natal border at about 26°30′S and the Incomati River floodplain, Moçambique 25°04′S, 32°56′E, where it is highly local and occurs only on the littoral (Clancey 1971). It could be that the northeastern Natal sight records of *V. crassirostris* are of sub-adult birds, moving south from Moçambique. There are, for example, no records in Natal during the months of May and June, although the area was well covered, both in time and number of field cards returned by observers who submitted their data to Cyrus & Robson (1980).

V. crassirostris has not yet been recorded breeding in Zimbabwe, though likely to do so (Irwin 1981). It would be useful to have authentic breeding records from both South Africa and Zimbabwe for this striking and poorly known plover.

Acknowledgements: I thank the Director of the Transvaal Museum, Dr C. K. Brain, for the opportunity to work on the collection, and I thank Richard Brooke for a helpful discussion on this paper. I am grateful for information on Long-toed Plovers in Natal given to me by Dave Ward and I thank John Colebrook-Robjent for data on the nesting of Long-toed Plovers.

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Books Received

Parker, S. A. *et al.* 1979, 1985. *An Annotated Checklist of the Birds of South Australia.* Parts 1 & 2a. Emus to Spoonbills and Waterfowl. Pp. 1–56, 1–25. Illustrated, indices, maps, gazetteer. South Australian Ornithological Association. Soft covers, 18 x 25 cm. $3.50 and $4.50 respectively.

To appear in 4 parts, the aim, successfully achieved so far, has been to provide data on the distribution and status of the birds of South Australia. Part 4 will bring the work finally up to date. The annotations for each species describe range, status and taxonomy and provide a comprehensive summary in considerable detail, which will be a valuable basis for many years to come.

Temple, S. A. (ed.). 1985. *Bird Conservation,* 2. Pp. 181. Published for ICBP U.S. Section by University of Wisconsin Press. Paperback $12.95, cloth $17.50. 15 x 23 cm.

The second issue of this useful publication, filling in the gap of reliable information between indigestible scientific statistical analyses and the heart-throb popular articles on decreasing species and habitats. Subjects discussed include the vulnerability to extinction of island birds, distribution and abundance of Hawaiian native birds and their vicissitudes, endangered birds in Micronesia and other conservation articles and news.

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Papers, from Club Members or non-members, should be sent to the Editor, Dr J. F. Monk, The Glebe Cottage, Goring, Reading RG8 9AP, and are accepted on the understanding that they are offered solely to the *Bulletin.* They should be typed on one side of the paper, with double-spacing and a wide margin, and submitted with a *duplicate copy on airmail paper.* Scientific nomenclature and the style and lay-out of papers and of References should conform with usage in this or recent issues of the *Bulletin.* Informants of unpublished observations should be cited by initials and name only, e.g. "... catches wasps (B. Eater)", but "B.B.C. Gull informs me that ...". Photographic illustrations, although welcome, can only be accepted if the contributor is willing to pay for their reproduction. Authors are requested to give their title, initials, name and full address (in the form they wish to be corresponded with) at the end of the paper.

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A contributor is entitled to 10 free reprints of the pages of the *Bulletin* in which his contribution, if one page or more in length, appears. Additional reprints or reprints of contributions of less than one page may be ordered when the manuscript is submitted and will be charged for. Authors may be charged for proof corrections for which they are responsible.

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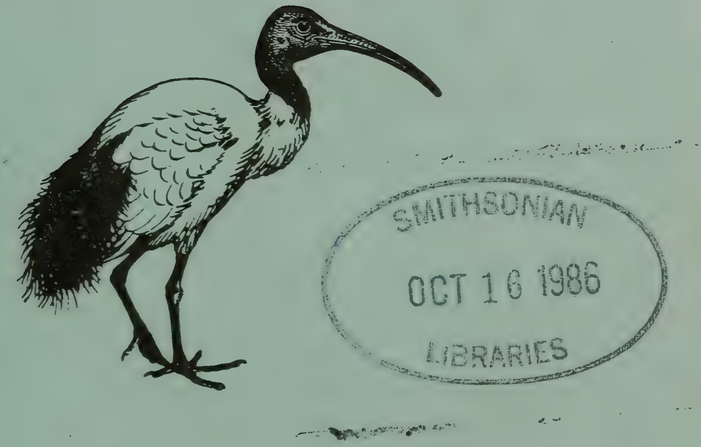

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Edited by

Dr J. F. MONK

Volume 106 No. 3 September 1986

FORTHCOMING MEETINGS

Tuesday, 23 September 1986. Dr W. R. P. Bourne on **Birds of Subantarctic Islands.** For details see the *Bulletin* of June 1986.

Tuesday, 21 October 1986 at 6 pm for 6.45 pm in the Senior Common Room, **Sherfield Building,** Imperial College, S.W.7, **Dr R. G. B. Brown** will speak on **"Seabirds and Oceanography".** Those wishing to attend should send their acceptance with a cheque for £5.30 a person to reach the **HON. TREASURER** at 53 Osterley Road, Isleworth, Middlesex TW7 4PW by first post on 7 October, if possible.* The Sherfield Building is in the main block of Imperial College, on the west of Exhibition Road.

DR BROWN, OF THE CANADIAN WILDLIFE SERVICE, DARTMOUTH, NOVA SCOTIA, IS VERY WIDELY KNOWN FOR HIS WORK ON SEABIRDS AND THIS MEETING HAS BEEN SPECIALLY ARRANGED TO TAKE ADVANTAGE OF A VISIT BY DR BROWN TO THIS COUNTRY, SO THAT MEMBERS MAY HAVE THE OPPORTUNITY OF HEARING HIM.

Afterwards there will be shown transparencies taken during the XIX International Ornithological Congress, held at Ottawa last June.

Tuesday, 18 November 1986 at 6 pm in the Lecture Theatre in the British Museum (Natural History), Cromwell Road, S.W.7 **Mr J. H. R. Boswall** will show films **A Paradise for Birds,** made in the southern Chinese province of Yunnan, and **The Azure-winged Magpie,** made in the eastern province of Shandong by Xu Zhen, for whom it won in 1984 the Golden Rooster award. After a hot buffet supper in the Senior Common Room, Sherfield Building, Imperial College at about 7.30 pm, **Mr Boswall** will speak on **"Ornithology in China** · a rambling but reasonably accurate excursion into birds in the People's Republic: their conservation, use in traditional medicine and art, their role in personal and institutional aviculture and as objects of scientific enquity''. Those wishing to attend should send their cheque for £5.30 a person to reach the **HON SECRETARY** at 2 Chestnut Lane, Sevenoaks, Kent TN13 3AR by first post on 4 November, if possible.*

These films have been specially brought to this country by Mr Boswall and it is believed that they have not before been shown in Britain.

Tuesday, 20 January 1987, at 6.15 pm for 7 pm in the Senior Common Room, Sherfield Building, Imperial College, **Dr C. J. Feare** will speak on **"Man and the Starling family".**

Tuesday, 10 March 1987, at the same venue, **Dr Carlo Violani** of Milan and Pavia University on **Current Studies on the Birds of Sardinia.**

*It will be possible to take acceptances up to the weekend before the Meeting, but **members are asked to accept by 14 days before the Meeting if they possibly can,** to avoid a substantial number of late acceptances, as we have to notify approximate numbers 14 days before the Meeting.

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Bulletin of the
BRITISH ORNITHOLOGISTS' CLUB

Vol. 106 No. 3 Published: 20 September 1986

The seven hundred and sixty-fifth Meeting of the Club was held at the Snooker Centre, 121 Holborn, London E.C.1 on Tuesday, 13 May 1986, at 7 pm. The attendance was 23 Members and 8 guests.

Members present were: Revd. G. K. McCULLOCH *(Chairman)*, P. J. BELMAN, Dr W. R. P. BOURNE, Mrs DIANA BRADLEY, D. R. CALDER, Cdr M. B. CASEMENT, R.N., S. E. CHAPMAN, S. J. W. COLES, R. F. COOMBER, Dr R. A. F. COX, N. J. CROCKER, J. H. ELGOOD, B. GRAY, S. HOWE, A. J. KENCH, Dr J. F. MONK, Mrs AMBERLEY MOORE, Mrs M. N. MULLER, R. E. F. PEAL, R. E. SCOTT, N. H. F. STONE, A. R. TANNER and Dr A. TYE.

Guests present were: P. BULL, Mrs ISABEL McCULLOCH, Dr AMICIA MELLAND, P. J. MOORE, Mrs G. A. SCOTT, C. SUMMERHAYES, A. TAYLOR and Mrs HILARY TYE.

Commander M. B. Casement, R.N. gave an address on "Land bird migration as seen from ships at sea". He spoke on his researches on bird migration by naval radar whilst serving at sea. He then showed slides of land birds which had landed on ships at sea in many parts of the world and detailed some instances of notably heavy falls of migrants on ships at sea and of land birds which had travelled long distances on ships. An interesting discussion then followed.

The seven hundred and sixty-sixth Meeting of the Club was held in the Senior Common Room, Sherfield Building, Imperial College, London, S.W.7, on Tuesday, 22 July 1986, at 7 pm. The attendance was 33 Members and 16 guests.

Members present were: Revd. G. K. McCULLOCH *(Chairman)*, P. J. BELMAN, K. F. BETTON, Mrs DIANA BRADLEY, J. N. B. BROWN, D. R. CALDER, S. J. W. COLES, P. J. CONDER, R. F. COOMBER, Dr R. A. F. COX, A. K. DAVIES, J. H. ELGOOD, Sir HUGH ELLIOTT, S. J. FARNSWORTH, G. D. FIELD, D. J. FISHER, A. GIBBS, B. GRAY, D. GRIFFIN, S. HOWE, A. J. KENCH, R. H. KETTLE, J. KING, Mrs AMBERLEY MOORE, Dr P. G. MORRIS, Mrs MARY N. MULLER, R. E. F. PEAL, R. E. SHARLAND, Professor S. SOMADIKARTA, R. STJERNSTEDT, N. H. F. STONE, D. TUTT and Dr A. TYE.

Guests present were: P. AMES, Mrs ZENA BALLARD, Mrs JEAN CALDER, B. CLARK, Dr N. DAVIES, Dr E. K. DUNN, Mrs S. J. FARNSWORTH, Dr L. D. C. FISHPOOL, Mrs MARGARET GREEN, R. GREENHALGH, Mrs ISABEL McCULLOCH, Ms B. MACEY, P. J. MOORE, C. MULLER, I. PROUD and Mrs HILARY TYE.

Christmas Island Frigatebirds *Fregata andrewsi* on the Kenya Coast

by C. F. Mann

Received 27 November 1985

From 26 to 31 December 1969 an immature frigatebird was seen daily over the beach just north of the town of Malindi on the Kenya coast. On 1 January 1970 it was joined by a second bird in a rather different plumage. The 2 were seen briefly each day until I left the area on 8 January. Praed & Grant (1957) and other books available at the time were not helpful in identifying the birds to species level. Slides were taken of the birds with a 400 mm lens on Agfacolor film. Examination of skins at the British Museum (Natural History) convinced me that they were not Great Frigatebirds *F. minor,* the most likely possibility, but probably Lesser Frigatebirds *F. ariel.* I briefly considered *F. andrewsi* but dismissed it as being highly improbable on the grounds of distribution. Other species were considered even more improbable on distribution grounds. After receiving a copy of Harrison (1983) my interest was revitalised. However, since I was still unable to reach any firm conclusion, the slides were sent to Peter Harrison who identified them as being without any doubt immature *F. andrewsi.*

The only known breeding colony is on Christmas Island, northeast Indian Ocean, where there are fewer than 2000 pairs. It disperses to the coasts of Java, Sumatra, northwest Borneo, to the Andaman Sea and Gulf of Siam (Harrison 1983). It is also known from Sabah (Smythies 1981), Brunei and Bali (pers. obs.). The only previous record away from this area is one near Darwin, Australia (Harrison 1983). The present record, which is over 6000 km west of any previous off season records, either shows that the immatures of this species, at least, are greater wanderers than was previously thought, or suggests the possibility of a small, unknown colony somewhere in the western Indian Ocean. Photographs taken from these slides will be deposited at the National Museum, Nairobi, Kenya. Anyone wishing to discuss the identification in detail may contact me at the address below.

Acknowledgements: I would like to express my gratitude to Peter Harrison who kindly identified the slides and provided me with an explanation for his decision. Also to the staff of the Sub-department of Ornithology, British Museum (Natural History) for access to the collections.

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The erectile crest and other head feathering in the genus *Picathartes*

by Hilary Tye

Received 11 December 1985

The 2 species of *Picathartes* have various common names, including 'bald crow', 'bare-headed rock-fowl' and 'picatharte chauve'. However, both species have 2 types of modified feather on their heads: there are well-defined areas of short bristles and also an erectile crest of simple feathers. The positions of the crest and bristles are different in the 2 species, associated with the differing pattern of black and coloured bare skin (Fig. 1). There has been no thorough examination of head feathering in either *Picathartes* species although the erectile crest has been briefly described by Flieg (1971) for *P. gymnocephalus* and the presence of these feathers noted in both species (Serle 1952, Carpentier 1964, McKelvey 1981).

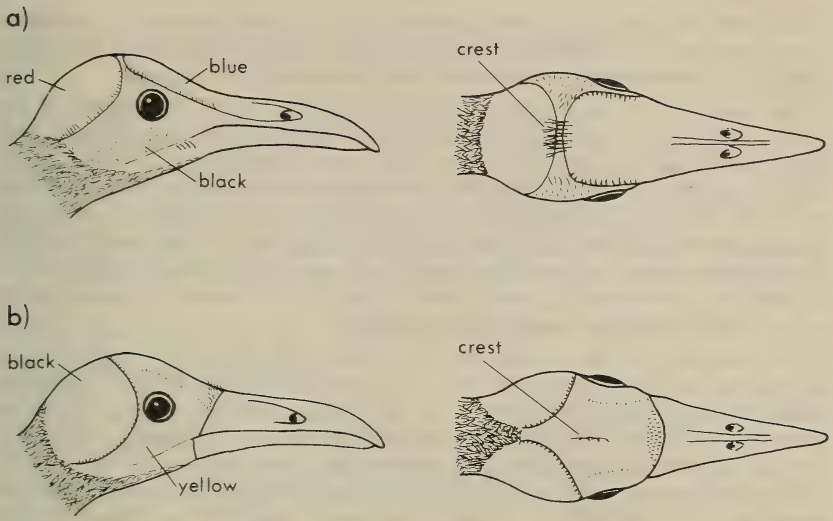

Figure 1. The pattern of skin colouration and distribution of head feathering for (a) *Picathartes oreas* and (b) *P. gymnocephalus*. Left, side view. Right, view from above. Bristles are shown as stipples or short individual lines.

Museum skins of 10 *P. oreas* and 12 *P. gymnocephalus* and 2 and 4 specimens respectively in formalin of each species were examined in this study. The latter specimens had probably been subject to less post-mortem wear; their head feathers were generally longer and more intact and were assumed to be most like fresh feathers of living birds.

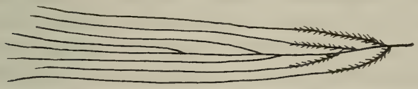

Figure 2. Typical feather from the erectile crest of both *Picathartes* spp.

Erectile crest

The feathers forming the erectile crest of *P. gymnocephalus* were called filoplumes by Flieg (1971), but close examination shows otherwise. Filoplumes have either no vane or a small one at the tip (Van Tyne & Berger 1959), whereas the crest feathers in both species of *Picathartes* have barbs along the whole length, the proximal ones, at least, bearing small barbules (Fig. 2). Filoplumes are always found beside other feathers (Van Tyne & Berger 1959) but *Picathartes* crest feathers are completely isolated from any others, in individual follicles. Filoplumes do not possess muscles (Stettenheim 1974), whereas the crest feathers of both *Picathartes* species evidently do, as they can be erected. The crest feathers are intermediate in form between contour feathers and down, being more structured than down; they fit definitions of a semiplume in that the longest barb is shorter than the shaft (Stettenheim 1972) and they have a definite rachis but no hamuli and therefore no firm vane (Van Tyne & Berger 1959). The crest feathers are only slightly simpler in form than the contour feathers on the neck, at the edge of the bare skin. These also have a loose structure, like many contour feathers of both *Picathartes* species.

The erectile crest of *P. oreas* consists of a staggered transverse row about 7 mm long of up to 9 feathers, rooted at the rear of the blue skin of the crown (Fig. 1a). These feathers are about 8 mm long and black.

The erectile crest of *P. gymnocephalus* is situated along the midline of the crown, between the eyes (Fig. 1b) and comprises a straight row, about 6 mm long, usually of 3 (see also McKelvey 1981), but occasionally 4, feathers. Flieg (1971) reported 3-5 'filoplumes', but it seems that he did not examine birds in the hand, merely "at close quarters", and also described them as being in 2 groups, whereas in the specimens I examined they seem to be evenly spaced. These feathers are 6-8 mm long and on museum specimens appear straw-coloured or, occasionally, partly black. Flieg (1971) records their colour as white, which they may appear from a distance.

The feathers on the crown of both species of *Picathartes* normally lie backwards, but can be erected at will. A *P. oreas* captured on Mount Cameroon raised its crest while in the hand (C. G. R. Bowden) and one *P. oreas* in a large aviary at Frankfurt Zoo did this when another approached within 1-2 m (A. Tye). *P. gymnocephalus* can also elevate the crest feathers (Flieg 1971). Although these feathers are only visible at close quarters, they may be used for signalling to conspecifics, rather than being vestigial, as Flieg (1971) suggested.

Bristles

The bristles on the areas of bare skin in both species of *Picathartes* are small but conform with the usual definitions of this modified type of feather (e.g. Stettenheim 1972). Much of the black area of skin around the eyes of *P. oreas* is covered with black bristles 1-2 mm long and about 1 mm apart. The borders of the black and coloured skin are also fringed with longer bristles 2-4 mm long at intervals of 1 mm or less (Fig. 1a). There are also a few bristles at the base of the lower mandible (Fig. 1a). The bristles are often longest in nestlings and after moult, probably due to lack of wear. The bare skin of the head is often not brightly coloured at fledging (Tye in prep.) and one *P. oreas* nestling I observed on Mount Cameroon in December 1983 had a blackish head which, combined with long fringing bristles, made its head appear feathered in profile.

In *P. gymnocephalus* the black areas of skin have no bristles visible under 10 x magnification. These areas do however have a fringe of bristles 1-2 mm long and there is a line of similar bristles above the eye (Fig. 1b). There are also bristles, up to 3 mm long, in a small patch on the yellow skin at the base of the upper mandible (Fig. 1b).

In other birds, bristles are most common around the eyes and base of the bill (Stettenheim 1972). Possible functions include protection of ears, nostrils and eyes from insects and foreign particles and to display brightly coloured skin while retaining some protection (Stettenheim 1974). Although the bristles of both *Picathartes* species are very short they may offer some protection, particularly as *P. gymnocephalus,* and probably *P. oreas,* forage at ant swarms (Walker 1939, Willis 1983).

Acknowledgements: I would like to thank the staff of the British Museum (Natural History) at Tring and the Cambridge University Museum of Zoology for access to specimens and Alan Tye for commenting on the manuscript.

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Pesticidal mortality of Crimson-breasted Barbet *Megalaima haemacephala* with a note on its body size

by Manjit S. Dhindsa, Jaswinder S. Sandhu & Amrik S. Sohi

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Chemical pesticides efficiently control obnoxious animals and thus are extensively used throughout the world; but many cases of direct and indirect mortality of non-target animals are known. This communication reports accidental mortality of Crimson-breasted Barbets *Megalaima haemacephala* following infusion of an organophosphorus insecticide monocrotophos (=Nuvacron SC 40) into Cluster Fig *Ficus glomerata* trees for insect control. The Crimson-breasted Barbet is found throughout India and as far south and east as the Philippines and Indonesia (Ali & Ripley 1970). It is almost exclusively frugivorous, preferring mainly the fruits of *Ficus* spp. *F. glomerata* produces big fruits c. 2.5–3.75 cm in diameter (Brandis 1921) which are relished by barbets and other birds as well as consumed by human beings.

Accidental poisoning of birds due to monocrotophos is not new. This insecticide was involved in mass mortality of birds like pipits, wagtails, larks, thrushes, Chaffinches, buntings, lapwings etc. following aerial sprays on alfalfa crop fields to control the Levant Vole *Microtus guentheri* in Israel. In addition, as many as 400 raptors, owls and kites also died after feeding on poisoned voles and birds in an area of 8 km^2 within 3 months (Mendelssohn & Paz 1977). Recently, poisoning of about 100 birds, mostly ducks and geese, has occurred in western Louisiana (USA) as a result of monocrotophos application to rice fields (White *et al.* 1983). Since the insecticide is so highly toxic to birds (Walker 1983), it has been used, along with dicrotophos, as poison bait on rice seed for the deliberate killing of birds around rice fields in Texas (USA) (Flickinger *et al.* 1984). However, there is no previous report of mortality of frugivorous birds due to this chemical. We present here a case which shows that monocrotophos can cause mass mortality of frugivorous birds if infused into fruit trees. Taking the opportunity this mortality presented, we have also analysed the morphometrics of Crimson-breasted Barbets.

In an experiment, laid out by one of us (ASS) on 20 May 1984 for the chemical control of Fig Wasp *Apocryptophagus* sp., monocrotophos was infused by making holes into the trunks of Cluster Fig trees situated in the Punjab Agricultural University Campus, Ludhiana (30°56′N, 75°52′E, c. 247 m a.s.l.). There were 9 trees in a row separated by 3.6–4.2 m. One tree was kept as control, whereas the other 8 were divided into 4 groups of 2 trees each and different amounts of the insecticide were infused into them at c. 45 cm above the ground level. Trees of the first, second, third and fourth groups received insecticide in amounts of 0.12, 0.25, 0.50 and 1.0 ml respectively per 2.5 cm (one inch) of their girth i.e., a tree of the first group with x cm girth got $(0.12/2.5)x$ ml of insecticide.

On 25 May we first noticed that Crimson-breasted Barbets were dying after feeding on fruits of treated Cluster Fig trees. We collected all dead and dying birds at 10:00 and thereafter visited the trees every hour to observe and capture all affected birds. Two birds had probably died on the previous day (i.e. 4 days after insecticide treatment) since their flesh had partly been consumed by ants.

Mortality

Seventeen barbets had died by 17:00 on 25 May. Six more died on the next day and one each on 27 and 28 May (total 25). Among these, 9 were adult males, 2 adult females, 5 juvenile males, 6 juvenile females and 2 juveniles whose sex could not be ascertained. The preponderance of adult males suggests they might have been more susceptible, but the sex-ratio of this species in the field is not known.

House Sparrows *Passer domesticus,* Common Mynas *Acridotheres tristis,* Red-vented Bulbuls *Pycnonotus cafer,* Rose-ringed Parakeets *Psittacula krameri* and Koels *Eudynamis scolopacea* were observed feeding on the poisoned fruits. However, only 2 Red-vented Bulbuls and one Koel were affected to the extent that they fell to the ground. Besides birds, Five-striped Palm Squirrels *Funambulus pennanti* were also seen feeding on the fruits, but with no visible adverse effect.

The affected birds would lose their balance, fall onto the lower tree branches and try to perch there, sometimes hanging upside down by their claws for a few moments. Having fallen to the ground, they would try to reach a hedge for cover. All were panting and their balance was upset due to their claws being tightly closed. Flickinger *et al.* (1984) stated that birds dying of monocrotophos and dicrotophos poisoning exhibited symptoms like loss of muscular coordination, prostration, tetany, outstretching of wings and convulsions.

Sickly birds rescued from below the trees were brought to the laboratory and fed on 10% glucose solution and uncontaminated fruits of Cluster Fig. In all, we caught 10 sickly barbets, 2 bulbuls and one koel. Eight barbets were kept in a cage at room temperature – average °C on 24-28 May: maximum 44.8°, minimum 27.6°, mean 36.2°. Of these, one fully recovered within 2 hours and was released, whereas 6 died within 12 hours and one died after 19 hours. Two barbets which were kept in a cage in an aircooled room (25° ± 2°C) fully recovered within 18 hours. A Koel collected in a semiparalysed condition and with folded claws recovered enough to sit on its feet within 70 minutes and was able to fly within the next 50 minutes. A bulbul fully recovered in a little more than 5 hours while another revived in about 3 hours.

Body size of Crimson-breasted Barbets

No information is available on the body size of this species except the ranges of a few measurements of museum skins and the weights (32-47 g) of 10 ♂♀ (Ali & Ripley 1970). We recorded measurements of 5 body size characters, namely, body weight, and lengths of bill, wing, tarsus and tail, of 18 (11 ♂♂, 7 ♀♀, 10 adults, 8 juveniles) freshly dead barbets following the methods of Dhindsa & Sandhu (1984) and Dhindsa *et al.* (1985). Sexes were confirmed by dissection and birds with completely ossified skulls were taken to be adults.

TABLE 1

Body size of Crimson-breasted Barbets *Megalaima haemacephala* and univariate comparisons between sexes and between adults and juveniles

Character	Total sample N=18	Males N=11	Females N=7	F–ratio for comparison between sexes (d.f.=1 & 16)
Weight (g)	29.59±3.26 (25.5–40.1)	30.18±3.62 (27.0–40.1)	28.66±2.55 (25.5–32.7)	0.93 P>0.050
Bill (mm)	19.22±0.94 (18.0–21.5)	19.64±1.10 (18.5–21.5)	18.57±0.61 (18.0–19.5)	5.44 P<0.050
Wing (mm)	83.22±1.67 (79.0–87.0)	84.64±1.63 (82.0–87.0)	81.00±1.73 (79.0–84.0)	20.32 P<0.001
Tarsus (mm)	20.83±0.67 (19.5–22.0)	21.00±0.63 (20.0–22.0)	20.57±0.73 (19.5–21.5)	1.74 P>0.050
Tail (mm)	36.67±1.59 (34.0–41.0)	37.45±1.69 (35.0–41.0)	35.43±1.40 (34.0–38.0)	6.95 P<0.050

		Adults N=10	Juveniles N=8	F–ratio for comparison between age samples (d.f.=1 & 16)
Weight (g)		30.50±3.59 (27.0–40.1)	28.45±2.55 (25.5–32.7)	1.85 P>0.050
Bill (mm)		19.85±1.00 (19.0–21.5)	18.44±0.42 (18.0–19.0)	13.85 P<0.010
Wing (mm)		83.90±2.13 (80.0–87.0)	82.38±2.67 (79.0–86.0)	1.82 P>0.050
Tarsus (mm)		20.80±0.63 (19.5–21.5)	20.88±0.79 (20.0–22.0)	0.05 P>0.050
Tail (mm)		37.50±2.01 (34.0–41.0)	35.63±0.92 (34.0–37.0)	5.90 P<0.050

Although the sample sizes were small, they were sufficient to reduce the standard errors to less than 2% of character means (Wooller 1984) in all characters except body weight (Table 1). In univariate comparisons, bill, wing and tail lengths of males were significantly longer than those of females,

TABLE 2

Results of MANOVA tests between male and female and between adult and juvenile Crimson-breasted Barbets *Megalaima haemacephala* (see Cooley & Lohnes 1971)

Test	Criterion	F-ratio	ndf$_1$	ndf$_2$	Significance
Between males & females					
For equality of dispersions	M=29.681	1.215	15	645	P>0.05
For overall discrimination	Λ=0.2481	7.270	5	12	P<0.01
Between adults & juveniles					
For equality of dispersions	M=23.274	0.998	15	906	P>0.05
For overall discrimination	Λ=0.3168	5.180	5	12	P<0.01

whereas body weight and tarsus length did not differ significantly between the sexes. Between adults and juveniles, bill and tail lengths were significantly longer in adults, but there was no significant difference in the other 3 characters. Overall size dimorphism was tested with the MANOVA programme of Cooley & Lohnes (1971), and this revealed a distinct size dimorphism between males and females and between adults and juveniles, with males significantly larger than females and adults larger than juveniles in overall body size (Table 2).

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Spurs and their function in some female game-birds

by G. W. H. Davison

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Although Galliformes' weaponry is confined to a single type – leg spurs –, there is a wide range in spur representation and number on the 2 sexes. There are 96 species with spurs only in males, and 17 with spurs normally in both sexes (Davison 1985). Spurs of males are always as large as or larger than those of females of equivalent age. The question then arises whether females' weaponry is adaptive, or represents incomplete suppression of the genotype for a feature which is non functional in that sex (cf. Kiltie 1985).

All species with multiple spurs show great variability in spur number, which is likely to be reflected by individual variation in wound inflicting ability. It is the purpose of this note to examine spur number and its variation, with special reference to females of some multiple spurred species. Statistical tests follow Conover (1980).

ITHAGINIS CRUENTUS

Table 1 shows the distribution of spur number in 4 age and sex classes of *I. cruentus,* as shown by museum skins. First-year birds were identified by their retention of 2 unmoulted juvenile primaries, accompanied in males by yellowish (not grey) abdomen and vermiculated (not striped) thighs.

TABLE 1

Representation by spur number (summed on the 2 legs) of age and sex classes of *Ithaginis cruentus, Galloperdix spadicea* and *G. lunulata*

	Total spur number							
	0	1	2	3	4	5	6	n
				Ithaginis cruentus				
Male adult	3	1	2	5	45	13	5	74
Male 1st year	13	–	1	2	7	1	–	24
Female adult	27	3	6	3	1	–	–	40
Female 1st year	8	2	–	–	–	–	–	10
				Galloperdix spadicea				
Male adult	–	–	1	1	39	2	–	43
Male 1st year	3	–	1	1	5	–	–	10
Female adult	–	1	5	6	9	–	–	21
Female 1st year	4	1	–	4	2	–	–	11
				Galloperdix lunulata				
Male adult	–	–	1	2	27	1	–	31
Female adult	2	–	5	5	7	1	–	20
Female 1st year	2	–	–	1	–	1	–	4

Spur number is apparently bimodal in 3 of the 4 classes, the exception being first year females. All but 3 adult males had spurs. Nearly half of all males in first year plumage had spurs, and the relative size of the peaks in these 2 classes suggests that some males develop spurs while in first year plumage, others only after assumption of adult plumage. The 3 spurless adult males, therefore, might have developed spurs had they lived longer. Of adult females one third were spurred, but spur number was bimodal at 0 or 2 (compared with 0 or 4 in males). Spur number was no more variable in females than in males. That spur number in first year females was unimodal suggests that spurs develop later, relative to the post juvenile moult, in females than in males. Again, some of the spurless females might have developed spurs later had they lived.

Wing length and spur number were independent: in the full sample of adult males (Spearman $r_s = 0.267$, $p > 0.05$), in spurred adult females ($r_s = 0.368$, $n = 12$, $p > 0.10$), and in spurred first year males ($r_s = -0.036$, $n = 8$, $p > 0.10$). But spurred adult females as a whole were significantly longer-winged than spurless adult females (Wilcoxon $Z = 2.248$, $p = 0.012$). Out of 34 females in adult plumage, the 11 smallest were all spurless. Perhaps females become larger and develop spurs in old age, or perhaps only large females have the capacity for spur development. Whichever is true, the factor which determines spur growth is linked with size, and is independent of the factor which determines spur number.

GALLOPERDIX SPADICEA

In this species (Table 1) all adult males and females were spurred. In both sexes, over half the first year birds were already spurred, suggesting that spur growth is earlier relative to plumage change in this species than in *Ithaginis* *cruentus*. Spur number in adult males was unimodal at 4, with a clear peak, and was also unimodal at 4 but with a broader peak in females. In other words, the distribution of spur number among males is leptokurtic, but in females it is platykurtic. These are further differences from *I. cruentus*.

GALLOPERDIX LUNULATA

This species closely resembles *G. spadicea,* except that spur growth may occur slightly later (witness 2 still spurless adult females – Table 1). Like *G. spadicea,* spur number was similar in the 2 sexes, with a more platykurtic distribution in females.

Discussion

The above figures give no definite answer to the question of adaptiveness of spurs in females, but they give some clues, especially in relation to spurredness in females of other species.

Presence or absence of spurs in females is related to spur number in the equivalent males. Thus females bear spurs in only 12.5% of the 80 species in which males are single spurred, but in 27.3% of the 33 species in which males are multiple spurred (Davison 1985). There are striking differences in female spurredness between closely related species. Female *Pavo muticus* are spurred but female *P. cristatus* are not. Female *Lophura erythrophthalma* are spurred, but females of 9 congeners are not (Delacour 1977). *P. muticus* and *L. erythrophthalma* are also peculiar within their respective genera in that females bear 'male-like' iridescent plumage.

Female spurredness is related to the social system. Males of 6 polygynous species have multiple spurs and their females are all spurless. Males of 25 polygynous species have single spurs, and in only 2 (8%) are their females spurred. This contrasts with the case amongst monogamous Galliformes, among which females of 14.5% of the 55 single spurred, and 33.3% of the 27 multiple spurred species, are themselves spurred. Thus, whereas in males spurredness is more strongly associated with polygyny (94% of males spurred) than with monogamy (63.2% of males spurred), in females it is the reverse.

Consideration of *Galloperdix* and *Ithaginis* resolves this seeming anomaly. Species of *Galloperdix* are apparently monogamous, the 2 sexes indulging in joint territorial defence by fighting and mutual calling (Henry 1978, Ali & Ripley 1969). Equal spur number in the 2 sexes, with all or nearly all adult females spurred, can be seen to reflect similar investment in territorial defence prior to nesting by the 2 members of the pair. Even so, a more even spread in spur number in females than in males suggests less intense selection pressure in that sex (see Kiltie 1985).

Polygyny, polyandry and monogamy have all been suggested as components of the social system of *Ithaginis* (Hume & Marshall 1879, Baker 1928, Grahame 1971). Very large flocks form in winter (Hume & Marshall 1879), and these break up into loosely associated pairs (Grahame 1976). Perhaps within winter flocks there is local mate competition between females as well as between males. If so, larger (and older?) females which have developed spurs should hold an advantage.

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Polymorphic rectrix number and ocellus size in *Polyplectron*

by G. W. H. Davison

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Cases of polymorphism involving distinct plumage colour are rare amongst Galliformes; male *Pucrasia macrolopha* (breast colour) and *Polyplectron emphanum* (brow colour) are examples (Delacour 1977). Much more common is polymorphism in spur number, amongst species with multiple spurs (Davison 1985a), and in tail feather number, as in Tetraonidae. Male *Dendragapus obscurus* have from 8 to 11 pairs of rectrices, and male *Bonasa umbellus* 7 to 10 pairs (Short 1967).

One group in which spur number is highly variable within species is *Polyplectron,* the peacock pheasants (Davison 1985b). In that genus few-spurred males are generally small, with absolutely and relatively short tails. Spur number and size might influence fighting ability, yet in the sample sizes used by Davison there was no clear correlation between a major visual component of display, namely the ocelli, and either size or spur number. This paper therefore reconsiders the above features in relation to rectrix number, another polymorphic feature of the genus not yet investigated.

The specimens used by Davison (1985b) were re-examined, and rectrix number counted on each. Care was taken to include feather positions undergoing moult. An additional 11 adult male *P. bicalcaratum bakeri* were measured for all characters (wing and tail lengths, largest wing ocellus and largest tail ocellus dimensions, rectrix number and spur number), representing a 60% increase in sample size for this subspecies. Correlations between ocellus size and other physical characters were re-tested using this expanded sample.

Table 1 shows the range in number of rectrices for the 2 sexes of all *Polyplectron* species. The data suggest that 8 pairs is the primitive number within the genus. This is the number in both sexes of *P. chalcurum,* generally considered the most primitive species (Delacour 1977, Geist 1977), and in females of some others. In other species, rectrix number is greater and more variable in males than in females.

TABLE 1

Number of pairs of rectrices in the 2 sexes of *Polyplectron* spp.

	Male		Female	
	This study	Delacour (1977)	This study	Delacour (1977)
P. chalcurum	8	8	8	8
P. inopinatum	9–10	10	9	9
P. germaini	10	10	9	–
P. bicalcaratum	8–11	10–12	9	–
P. malacense	9–10	11	8	–
P. (m.) schleiermacheri	10	–	8	–
P. emphanum	11–12	11–12	9–10	–

There is no evidence, in *P. bicalcaratum,* that rectrix number increases with age. Rectrix number in the few juveniles available varies over as wide a range as in adults, and in all age categories 10 pairs are most common (Table 2). For this species, there is no evidence that males with 10 pairs of rectrices have longer tails than those with 9 pairs (Mann-Whitney $U = 231.5$, $n_1 = 13$, $n_2 = 34$, $p > 0.10$).

TABLE 2

Frequency of different rectrix numbers in *Polyplectron bicalcaratum* according to age class.

	Rectrices (pairs)			
	8	9	10	11
Juvenile	1	–	3	1
Adolescent	1	–	2	–
Adult	3	15	34	1

Surface area of the largest ocellus on the central pair of rectrices was used as an index of plumage extravagance. Rectrix number is not significantly correlated with tail ocellus size (Spearman $r_s = 0.190$, $n = 51$, $p > 0.05$). Nor is it correlated with spur number.

TABLE 3

Spearman rank correlations (r_s) between various physical features of *Polyplectron bicalcaratum.* Sample sizes are given in parentheses; $^{*}p < 0.05$; $^{**}p < 0.01$.

	P.b. ghigii	*P.b. bakeri* (Davison 1985b)	*P.b. bakeri* New sample	*P. bicalcaratum* Pooled sample
Wing *v.* wing ocellus	0.013 (9)	–0.047 (18)	–0.055 (29)	0.0813 (55)
Tail *v.* tail ocellus	–0.317 (9)	0.307 (18)	0.213 (29)	0.0507 (55)
Wing *v.* total ocellus	–0.158 (9)	0.106 (18)	0.188 (29)	–0.0111 (54)
Spur number *v.* total ocellus	0.475 (9)	0.693 (18)**	0.307 (29)	0.2799 (55)*

Correlations between various physical features of *P. bicalcaratum* are shown in Table 3. An increase in sample size of *P.b. bakeri,* from 18 to 29 adults, did not improve correlations between ocellus size and other features. When data are pooled from all subspecies of *P. bicalcaratum,* only spur number is correlated with ocellus size, and the correlation is weak. A male with 7 spurs had particularly tiny ocelli, but this specimen was not accessible to accurate measurement. More strikingly, wing length and tail length show no correlation with the sizes of ocelli they bear, and this is true for each subspecies as well as for the pooled sample (Table 3).

As amongst grouse (Short 1967), the frequency of variations in rectrix number greatly exceeds what might be expected from recurrent mutations, and is more plausibly explained as the effect of a genetic polymorphism. Variation in rectrix number among these Galliformes thus differs fundamentally from the occasional variation found in other birds (Somadikarta 1984, Hanmer 1985). Terrestrial habits might release rectrix number from unifying selection pressure, which could then be susceptible to random drift or to pressures conferring advantages other than those of flight.

The general picture within *Polyplectron* is now of a network of poorly correlated variations, in wing length, tail length and spur number. These correlations, because low, are more likely the result of weak genetic linkage than of pleiotropy (Berry 1977). Particular interest attaches to the lack of correlation between wing or tail lengths, which are direct measurements of feather size, and the ocelli borne on those feathers. These 2 aspects seem to be controlled by different and independent loci. This might be related to the distinction between those features important in inter-male competition (spur number, and wing or tail lengths as a reflection of intimidating body size), and those important in the attraction of females by display. In the second category, number of ocelli may be no less important than their size, and the abundance of ocelli can be manipulated by differences in the number of rectrices which bear them.

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A new race of *Grallaria haplonota* (Formicariidae) from Ecuador

by Mark B. Robbins and Robert S. Ridgely

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An ornithological survey of the Cordillera de Cutucú in southeastern Ecuador by members of the Academy of Natural Sciences, Philadelphia (ANSP), resulted in the discovery of a new form of the Plain-backed Antpitta *Grallaria haplonota.* We propose to call this new form

Grallaria haplonota chaplinae subsp. nov.

Type. Adult male; Academy of Natural Sciences, Philadelphia No. 176862; "Yapitya", on trail from Logroño to Yaupi, west slope Cordillera de Cutucú, Province of Morona-Santiago, Ecuador, elevation 1525 m; 26 June 1984; collected by M. B. Robbins; original number 1304.

Diagnosis. Distinguished from all known populations of *Grallaria haplonota* by having the distal edge of dorsal feathers Sepia (Color 119; capitalized colours from Smithe 1975, 1981), giving the back a dark, scaly appearance. Dorsal coloration greenish-olive, closest to Greenish-Olive (49), but slightly darker with faint vermiculations of Sepia (119), not "Dresden Brown" of nominate *haplonota* and *pariae* (Phelps & Phelps 1949), nor "dark olive-brown with a rufous tinge" of *parambae* (Rothschild 1900). Remiges Sepia (119) with Raw Umber (123) to outer margins, not "Benzo Brown" of *haplonota* and *pariae* (Phelps & Phelps 1949) or "blackish-brown, with rufous-brown outer webs and rusty margins to the inner webs" of *parambae* (Rothschild 1900). Underparts closest to nominate. The rectrices are Hair Brown (119A), with rusty tinge. The throat is mainly white, tinged with ochraceous.

Measurements of type (mm). Wing (chord) 97.2, tail 35.8, tarsus 41.2, culmen 25.3 mm.

Soft parts. Irides dark brown; maxilla black; mandible horn/dirty white; tarsi grey.

Range. Known only from the type locality, elevation 1525–1700 m.

Specimens examined. Grallaria haplonota haplonota (13). Venezuela: Cumbre de Valencio, 2 ♂♂, 1 ♀; Paso Hondo, 1 ♀; Mt Bucarito. 3 o?; Maracay, 2 ♀♀; Rancho Grande. 1 ♂, 1 ♀, 1 o?; Ecuador: Prov. Napo; Sumaco, 1 ♂. *G.h. pariae* (1). Venezuela: Cerro Azul, 1 ♂. *G.h. parambae* (7). Ecuador: Prov. Esmeraldas: Paramba, 1 ♀ (type); Prov. El Oro: c. 9.5 road km W of Piñas, 4 ♂♂; La Chonta, 1 o?; Prov. Pichincha: Mindo, 1 ♂. *G.h. chaplinae* (3). Ecuador: Prov. Morona-Santiago; "Yapitya", Cordillera de Cutucú, 3 ♂♂.

Etymology. We take pleasure in naming this subspecies after the late Louise Chaplin Catherwood.

Remarks. The specimens of *chaplinae* were compared primarily with old material of the other described forms. Therefore, we exercised caution in making these comparisons, in view of the possibility that some or all of the older material had become foxed. Thus, we primarily relied on the original descriptions for colour comparisons.

We recently collected 4 fresh specimens of *parambae* in southwestern Ecuador (Prov. El Oro; Piñas), and these are not in accord with all the distinctions given by C. E. Harris in Hellmayr (1924), at which time only the type was available. Harris related to Hellmayr (p. 339) that *parambae* differed from nominate *haplonota* in having the "bill larger, crown rufescent rather than olive, underparts more tawny, with the throat hardly paler than the chest". However, *parambae* does not have a larger bill than either the nominate or *pariae* (Table 1). In fact, there is extensive overlap in bill measurements for all the races, except *chaplinae.* Re-examination of the *parambae* type (now in the American Museum of Natural History), revealed that the crown nearly matches the dorsal coloration, a brownish-olive;

TABLE 1

Measurements (mm) of *Grallaria haplonota* races[1]

	Wing (chord)	Tail	Tarsus	Bill (from base)
chaplinae (3)	99.7 (97.2–101.3)	38.0 (35.8–39.8)	42.1 (41.2–43.1)	25.2 (25.0–25.3)
parambae (6)	101.0 (99.3–103.0)	36.5 (33.2–39.5)	44.2 (41.7–46.4)	28.3 (27.4–30.7)
haplonota (13)	99.9 (93.2–104.5)	40.6 (37.1–43.6)	43.7 (37.1–46.2)	27.1 (25.1–30.0)
pariae[2] (5 ♂♂)	99.4 (98–101)	41.8 (40–43)	–	29.2 (28–30)
(5 ♀♀)	101.2 (98–103)	41.4 (39–43)	–	28.8 (28–30)

[1] means are shown, with ranges in parentheses below each entry.
[2] measurements taken from Phelps & Phelps 1954.

moreover, our fresh *parambae* specimens exhibit no differences in colour between the crown and dorsum. Apparently, Harris erred in attributing a rufous crown to *parambae,* since the original description (Rothschild 1900) and our examination of the type revealed no such trait. Both *parambae* and *pariae* do average deeper tawny underparts than either *chaplinae* or the nominate, though there are specimens of each race which can be matched with individuals of the others. For example, one *chaplinae* (ANSP 176860) is very close ventrally to a recent example of *parambae* (ANSP 177600).

The amount of ochraceous on the throat is another variable character among the forms. Both *parambae* and *pariae* tend to be more ochraceous, the nominate least so, with *chaplinae* intermediate. Again, as with the ventral colour, there is some overlap among the races.

All 3 *chaplinae* specimens exhibited moderate to heavy body moult. Two of the specimens (ANSP 176860 & 176861) had primaries (counted from outer side) 9 and 10 in moult, and the type had the 7th, 8th, 9th and 10th sheathed. All 4 recent specimens of *parambae,* collected in June, were in a similar stage of moult. In view of the stage of moult, the size of the testes (testes of all 7 males $\leqslant 5$ mm), together with the lack of vocal activity (at both localities), we suspect that June-July is a non-breeding period for both *chaplinae* and *parambae.*

There are no published records of *G. haplonota* from the eastern slope of the Andes. The nominate race is recorded only from the coastal mountains of northern Venezuela from Lara east to the Paria Peninsula (Meyer de Schauensee & Phelps 1978), c. 1300 km northeast of Ecuador. There are no published records for Colombia (*in* Hilty & Brown, MS). However, D. W. Norton collected a single specimen (MCZ 329744) during July 1964 at the head of the Río Guataraco, Volcán Sumaco, Prov. Napo, an isolated mountain just east of the main chain of the Andes in northern Ecuador. Surprisingly, this bird (a male) closely matches the geographically distant nominate race in plumage colour and morphometrics (bill 29.9, wing (chord) 102.8, tarsus 44.2, tail 38.6 mm). Furthermore, R.S.R. and P. Greenfield have heard birds which sounded identical to *chaplinae* on the eastern slope of the Andes in Ecuador not far to the west of Sumaco (Prov. Napo; Coca Falls, c. 1400 m). We suspect that the absence of previous records from the eastern slope may be due to lack of observers in the subtropical zone, and the fact that *G. haplonota* is easily overlooked and very difficult to collect, even when using playback recordings. We predict that *G. haplonota* eventually will be recorded from at least southern Colombia to northern Peru (north of the Marañon Valley). The race *parambae* is known only from the west slope of the Andes in Ecuador, although S. Hilty (*in* Hilty & Brown, MS) notes that he may have heard it in southwestern Colombia, also on the west slope, between 900 and 1200 m (Deptos. Nariño & Valle).

Although the new form is morphologically the most divergent of *haplonota* populations, a vocal comparison of recordings of the nominate race (Venezuela: Caracas; Oripoto, by P. A. Schwartz, Cornell Laboratory of Sounds) revealed no significant differences from *chaplinae*. Likewise, vocalizations of *chaplinae* and *parambae* (El Oro) are nearly identical.

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Plumage stages, moults, sexual dimorphism and systematic position of the Somali Wheatear *Oenanthe phillipsi*

by Alan Tye

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In his original description of the Somali Wheatear *Oenanthe phillipsi,* Shelley (1885) gave no indication of the range of variation in the species, describing a single plumage form with a black face, throat and breast. He did not assign the description to any particular age or sex, thereby implying monomorphism. Shelley's type was collected by Lort Phillips in 1884, along with several other specimens of the new species, and it is likely that Shelley examined more than just the type. However, all of Lort Phillips' specimens, now in the British Museum (Natural History) (BMNH), were of the same, 'black-throated' plumage phase, and most were unsexed.

Later, birds of this species, with a so-called 'grey' face, throat and breast, were collected. These were not mentioned by Archer & Godman (1961), who described the black-throated form fully, applying it to both sexes (see also Meinertzhagen 1954). However, later authors (e.g White 1962, Hall & Moreau 1970) have assumed that black-throated individuals are males and grey-throats females. Hall & Moreau (1970) go further, and ascribe to the 'female' a brown tinge to the grey back.

Oenanthe phillipsi has frequently been considered a subspecies of the Northern Wheatear *O. oenanthe* (e.g. Meinertzhagen 1930, 1954, White 1962), or, at least, closely-related to it, as it resembles Seebohm's Wheatear *O.o. seebohmi* of northwest Africa in combining black throat with grey back (Meinertzhagen 1954). However, Hall & Moreau (1970) state that at least as good a case can be made for allying *O. phillipsi* with the Pied Wheatear, *O. pleschanka,* which it resembles more closely in tail-pattern and egg colour and in the sexual dimorphism which they ascribe to *O. phillipsi.* I hope to show here that the earlier authors were correct in describing *O. phillipsi* as sexually monomorphic in plumage, and that the colour of the face, throat and breast reflects age, not sex. As throat colour and sexual dimorphism have been used in judging the species' possible relationships, I have also re-examined its systematic position.

The results and conclusions presented here are based on specimens at BMNH.

Plumage forms

ADULT MALE AND FEMALE

Of the available specimens, 93% were sexed by the original collector. These determinations, taken with study of the juvenile plumage and its progression towards the adult form (see below), reveal no differences in plumage between the sexes. Adult plumage is as follows:

Forehead and supercilium white; crown, nape, back and scapulars pure french-grey; sides of neck, ear-coverts, lores, chin, throat and breast black; rump and upper tail-coverts white, central pair of rectrices black with white edges near base and tipped white; other rectrices white with distal $^3/_4$ of shaft black, broadening on outer web to a black wedge, which extends across the inner web near the tip (Fig. 1); all rectrices tipped white, wearing off, especially on central pair; belly and under tail-coverts white, primaries very dark brown or black, without buff tip, even when fresh; secondaries and tertials very dark brown or black, narrowly tipped white when fresh, with tertials and inner secondaries fringed white on outer web; greater primary-coverts black; other wing-coverts pale grey; under wing-coverts and axillaries black; underside of remiges smoke-grey; bill black; legs and feet black.

JUVENILE MALE AND FEMALE

The newly-fledged young are speckled, as in other wheatears: forehead, crown, nape, back, scapulars, face and underparts down to lower breast mottled brown and dark grey (feathers broadly tipped brown, basally dark grey with brown tinge); rump and upper tail-coverts white; tail as adult but black areas

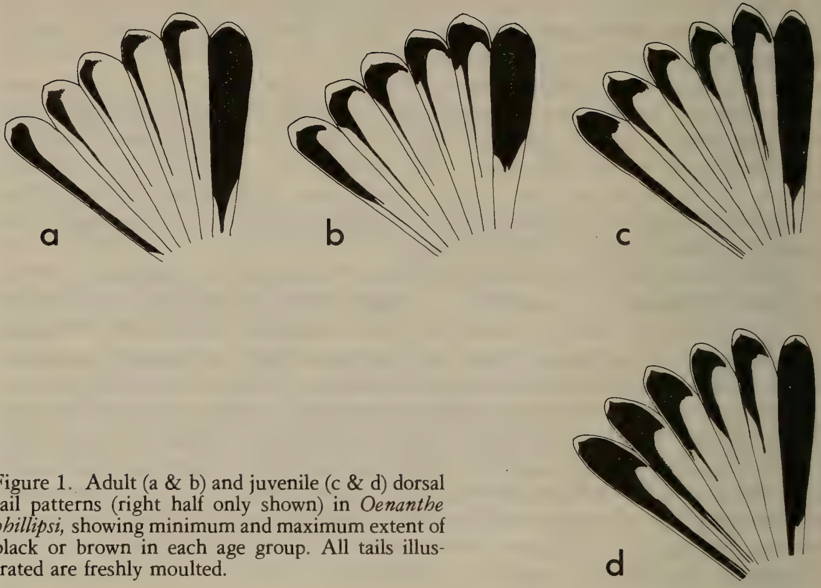

Figure 1. Adult (a & b) and juvenile (c & d) dorsal tail patterns (right half only shown) in *Oenanthe phillipsi,* showing minimum and maximum extent of black or brown in each age group. All tails illustrated are freshly moulted.

are browner and are broader on both webs (Fig. 1); belly and under tail-coverts white smudged with dark brown, especially near breast; primaries dark brown, tipped buff when fresh; secondaries and tertials dark brown, tipped and fringed on outer web with buff; wing-coverts buff (basally greyish-brown); underwing as adult; bill dark brown, basally horn.

Hence, important juvenile characteristics are: brown on the back, brown and grey on the areas which are black in adults, tail pattern and colour of primaries. In addition, the juvenile primaries are broader and rounder than those of adults, which are more squarely-tipped (Fig. 2). This is particularly evident on primary 9 (descendent). The buff wing-coverts are less useful for identification as they are soon replaced by pale grey ones (see below). Apart from the wing-coverts, the juvenile characters may be traced in older birds, and permit separation of first-year individuals from adults.

FIRST WINTER (UNTIL JANUARY) MALE AND FEMALE

The plumage of first-winter birds does not appear to have been described before. It is developed from the juvenile dress by wear and a prolonged post-juvenile moult (described below). An asterisk indicates features which differ noticeably from the fully-adult plumage: forehead and supercilium white;

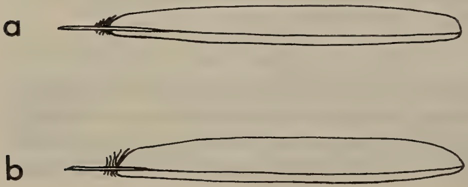

Figure 2. Primary 9 (numbering descendently) of (a) adult and (b) immature *Oenanthe phillipsi.*

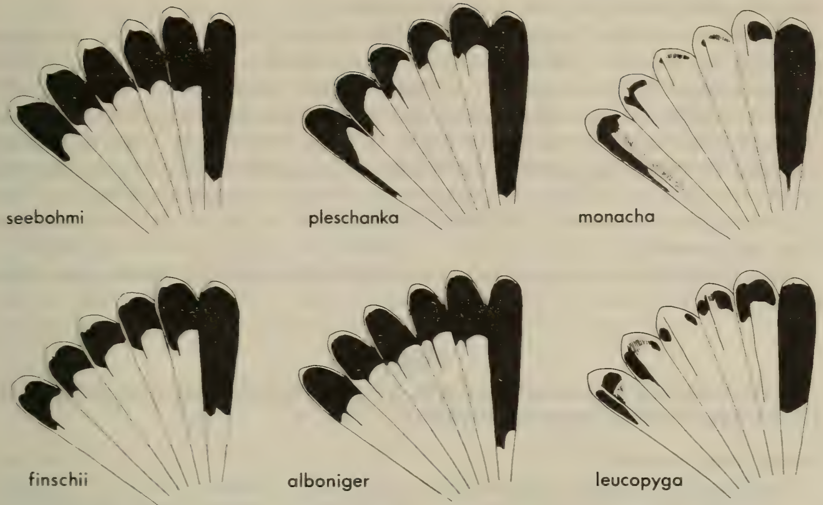

Figure 3. Tail pattern in adults of species of wheatear which may be closely-related to *Oenanthe phillipsi*. *Cf.* Fig. 1. All tails are of freshly-moulted birds. *O. monacha* and *O. leucopyga* often show less black than illustrated here, but the tails shown demonstrate the shape of the black areas when present.

crown, nape, back and scapulars grey tinged with brown*; sides of neck, ear-coverts, lores, chin, throat and breast black, mottled or scalloped to a variable extent with grey*; rump and upper tail-coverts white; tail as juvenile*; belly and under tail-coverts white; primaries as juvenile although losing buff tip*; secondaries and tertials as adult but buff tips broader*; greater primary-coverts brown, with narrow cream edgings progressively lost through wear*; other wing-coverts pale grey; underwing as adult; bill black but lower mandible often basally horn*.

The feathers of the upperparts have lost the juvenile brown through wear and partial moult, becoming grey. However the grey is tinged brown, unlike the pure colour of the adult feathers (noted as a 'female' characteristic by Hall & Moreau 1970). Likewise, the feathers of the face, throat and breast have lost their brown tips, revealing mottled grey and black. These feathers are grey to a variable extent: in a few individuals, the face, throat and breast can be almost black following the post-juvenile moult, although some scalloping always remains, while at the other extreme, these areas can look almost wholly grey. However, it is to be noted that some adults may have a little fine white scalloping on the lower breast, near the white belly, but this is evident in fresh dress only and has a different appearance from the more generally-distributed grey mottling of immature birds.

The bill changes progressively to the adult colour. It is noticeably horn at the lower mandible's base in 13 of 15 (87%) first-winter birds and 9 of 22 (41%) adults.

Hence, the following features help to identify a first-winter bird: brown tinge on back; grey mottling on face, throat and breast; tail pattern; primary shape and colour; colour of greater primary-coverts; bill colour. The grey mottling on the black areas should permit field identification of such birds.

FIRST SUMMER (FEBRUARY-JUNE) MALE AND FEMALE

The first summer plumage resembles the first winter except: the grey mottling on the black areas is almost or completely lost (by March); most rectrices have the adult pattern; primary-covert edgings have worn off; the lower mandible is as adult. Some individuals remain recognizable as first summer birds in the hand, but probably none in the field, by: brown tinge on upperparts; remaining juvenile rectrices; primary shape and colour (unless the outers are moulted, when contrast shows); traces of edgings or browner colour of greater primary-coverts; by June, all upperparts, wing-coverts and primaries very badly worn.

From June, first-year birds moult and become indistinguishable from older birds.

Moults

The plumage phases described above are developed through wear and moult. There appear to be 2 types of moult.

Post-juvenile moult

The breeding season is April-June (Archer & Godman 1961, J. S. Ash), and juveniles seem to commence moult immediately after fledging or independence. All juvenile specimens examined, from June and July, showed body moult, and birds in first-winter dress appear from late June.

Post-juvenile moult includes body, under wing-coverts and upper wing-coverts except greater primaries. The speckled juvenile dress is rapidly lost by this moult and wear, although odd juvenile wing-coverts (in addition to the greater primary coverts) may be retained until October.

First-winter birds have the body in moult September-November, but not in January. Unfortunately, I was unable to examine any first-winter specimens from August or from December earlier than the 29th, but it appears that this may be a prolongation of the post-juvenile body moult, lasting for up to 6 months.

First-winter birds may replace odd rectrices at any time, but the tail undergoes a partial moult October-January, although the moult in individual birds probably does not take so long. In most individuals, the outer rectrices 3-6 (from centre) on each side are replaced, but there is considerable variation, with some birds moulting the whole tail. As most retain the 2 innermost pairs of rectrices, the pattern on the pair adjacent to the central pair often serves to identify a first-year bird through to the first post-nuptial moult.

Some first-winter birds replace one or more tertials and occasionally the innermost secondary, in January. One specimen examined had also replaced the outer 4 primaries on one side and the outer 5 on the other.

Post-nuptial moult

The post-breeding moult starts in late June, and the body is in moult at least until November. This moult is complete. The tail and primaries are replaced June-August, and possibly into September. The tail moult is irregular and the primary moult may be considerably out of phase on the 2 wings (e.g. left $5^5 10^4$, right not yet commenced). The secondaries are in moult June-August and the tertials June to mid-September. The tertial moult is rapid, complete by late July in some. Secondary moult is also irregular, possibly commencing with both outers and inners and progressing centripetally.

About half of the adult specimens from late December to February show traces of body moult on the back only. This seems unlikely to be a true prenuptial moult, which is probably absent in *O. phillipsi,* as in other Turdidae (Ridgway 1907). It is more likely to be the final stages of an extended postnuptial moult, but, unfortunately, no specimens from late November or early December were available to prove continuity. If this were the case, the postnuptial moult would extend almost to the recommencement of breeding.

Sexual dimorphism

Although monomorphic in plumage, there are sexual differences in size, with males averaging significantly larger in wing, tail and tarsus (Table 1). These differences cannot, unfortunately, be used to determine the sex of individual birds, as the ranges overlap broadly for each variable.

TABLE 1

Morphometrics of *Oenanthe phillipsi.* Data are in the form $\overline{x} \pm 1$S.E. (n) range. $^{*}P<0.05$, $^{**}P<0.01$, $^{***}P<0.005$ (2-tailed t-tests) for male-female differences.

	Wing	Tail[1]	Bill[2]	Tarsus
Adult male	83.9±0.6(12) 80–86	48.9±0.6(13) 44–52	17.5±0.1(13) 17–18	25.2±0.2(13) 23–26
	***	**		**
Adult female	80.7±0.8(6) 79–83	46.0±0.8(6) 44–49	17.3±0.2(6) 17–18	23.8±0.5(5) 22–25
Immature male	81.9±0.9(9) 78–87	49.4±0.7(9) 47–53	16.6±0.3(8) 15–18	25.0±0.3(9) 24–26
	*			
Immature female	79.9±0.5(10) 78–83	48.8±0.4(10) 47–52	16.6±0.2(9) 15–17	24.5±0.3(10) 23–26

[1] The longer tail of immatures is due to presence of an unworn white tip in more of the immature specimens.

[2] The bill is still growing in young birds, being smallest in newly-fledged specimens and reaching adult size by (usually) January.

Systematic position

O. phillipsi has been allied with *O. oenanthe* or *O. pleschanka* (= *leucomela)* on the basis of colour pattern or sexual dimorphism, as outlined earlier. As plumage dimorphism is in fact absent from this species, it seems worth while to re-examine plumage characteristics relative to those of other *Oenanthe* species.

Characters which seem useful in determining relationships within the genus include those in Table 2. Shown are most of the important plumage features which vary within the genus, and which enable *Oenanthe* spp. to be placed in a number of more or less well-defined groups (Tye, unpubl.). One such group, which includes *O. oenanthe* and *O. pleschanka,* comprises species with predominantly grey or brown upperparts (in adults of one or both sexes), while another includes species which are mainly or exclusively black or white. The first group extends across the Palaearctic, while the second is centred on north Africa and the Middle East.

On general appearance, it may seem that *O. phillipsi* belongs with the first group. However, a more detailed comparison (Table 2) with *O.o. seebohmi* and *O. pleschanka* (the 2 members of the 'grey/brown' group with which *O. phillipsi* has most in common) and with members of the 'black-and-white' group, reveals that *O. phillipsi* shares more features with the latter.

This analysis is no less subjective than other taxonomic studies, as it is difficult to define 'a character'. For instance, *O.o. seebohmi* males have a brown back only in non-breeding dress. However, scoring only breeding dress but including an extra character 'Presence of distinct non-breeding plumage', increases the scores of all members of the black-and-white group by one as well as that of *O.o. seebohmi,* while leaving the score for *O. pleschanka* unchanged. Similarly, the colour of the upperparts could be treated as 2 characters (crown and back) as here, or as one carrying half the weight and increasing the number

TABLE 2

A comparison of plumage characters between *Oenanthe phillipsi* and possible close relatives. Numbers indicate the degree to which each character is shared with *O. phillipsi:* higher scores indicate closer similarity. Where sexual dimorphism exists, scores are based on male plumage.

Species	Tail pattern[1]	Crown	Back	Wing coverts	Under wing	Extent of black on underparts	Under tail coverts	Sexual dimorphism	Distinct immature plumage[2]	Overall similarity with *phillipsi*
phillipsi	–	Grey	Grey	Grey	Black	Breast	White	Absent	Present	–
o. seebohmi	0.33	Grey brown[3] 0.5	Grey brown[3] 0.5	Black	Grey	Throat	White 1	Present	Absent (as ♀) 0.25	2.58
pleschanka	0.42	White brown	Black brown	Black	Black 1	Throat	White 1	Present	Absent (as ♀) 0.25	2.67
monacha	0.83	White	Black	Black	Black 1	Breast 1	White or buff 0.5	Present	Present[4] 1	4.33
finschii	0.50	Grey-white 0.5	Grey-white 0.5	Black	Black 1	Upper breast 0.5	White 1	Present	Absent (as adults)	4.00
alboniger	0.50	Black	Black	Black	Black 1	Throat	White 1	Absent 1	Absent (as adult)	3.50
leucopyga	0.75	White	Black	Black	Black 1	Belly	White 1	Absent 1	Present (crown black) 0.5	4.25

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[1] See Figs. 1 & 3. For explanation of tail scoring system, see text.

[2] Scored 1 if distinct from adults of either sex in breast colour, 0.5 if distinct from adults of either sex in another character, 0.25 if as female in a sexually dimorphic species.

[3] Browner in non-breeding dress.

[4] White mottling on black areas of underparts.

of fractional scores. Tail-pattern may be treated as one character or several. To reduce subjectivity, it was assessed on each of 6 characteristics, which were scored 0, 0.5 or 1.0 according to an assessment of the degree of resemblance to *O. phillipsi.* The 6 scores were then summed and divided by 6 to give an overall tail score of maximum 1, thereby avoiding giving undue weight to this feature. The 6 characteristics were: (1) shape and (2) extent of black on central pair of rectrices; (3) shape and (4) extent of black on outer webs of all other i.e. outer rectrices; (5) shape and (6) extent of black on inner webs of outer rectrices. In fact, treating upperparts as one character or tail as more than one, divorces *O. phillipsi* even further from *O. oenanthe* and *O. pleschanka* and brings it closer to the black-and-white group. In other words, Table 2 understates the differences between *O. phillipsi* and *O. oenanthe/O. pleschanka* and minimises its similarities with members of the black-and-white group.

However, despite the evident distance of *O. phillipsi* from *O. oenanthe,* these are the only two *Oenanthe* spp. possessing a french-grey back, suggesting that *O. phillipsi* may link the 2 groups of species.

Table 2 reveals that *O. phillipsi* possesses some quite distinct characteristics, such as its pale grey wing-coverts, which are unique in the genus. Also, a distinct immature plumage based on the colour of the face, throat and breast is unusual, and approached in only the Hooded Wheatear *O. monacha* and possibly the Desert Wheatear *O. deserti,* in which immature males may have some white mottling on the black of the underparts. It seems clear that *O. phillipsi* is a well-differentiated species, and is certainly not sufficiently close to be regarded as a subspecies of any other species of wheatear.

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A new generic status for the Dappled Mountain Robin

by M. P. S. Irwin & P. A. Clancey

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A recent study of the Spot-throat *Modulatrix stictigula* (Reichenow) by Irwin & Clancey (1985) has again focussed attention on the limits of the small Afrotropical robin genus *Modulatrix* Ripley, 1952. They concluded that, despite doubts expressed elsewhere, *stictigula* was correctly placed in the

Turdidae, even though it lacked the 'turdine thumb' on the syrinx, considered to characterise the Turdidae (=Muscicapidae, *sensu* Olson 1984). This however, left open the question of the relationship of the Dappled Mountain Robin *Modulatrix orostruthus* (Vincent), the only other species presently placed in the genus. Originally described by Vincent (1933) as *Phyllastrephus orostruthus,* it was removed to the Turdidae by Benson & Irwin (1975). Irwin & Clancey (1985) suggested that the generic relationship of *orostruthus* be re-investigated using a more traditional approach, as anatomical material was lacking and the syringeal morphology undescribed. One of us therefore (PAC) has re-examined the material in the British Museum (Natural History) at Tring. As a result it is now clear that, contrary to the decision of Benson & Irwin (1975), the wide range of differences existing between *orostruthus* and the sympatric but questionably competing *M. stictigula,* are sufficiently divergent one from another to warrant generic separation and the placement of *orostruthus* in a new genus.

Prima facie, M. orostruthus is anomalous rather than aberrant, but a re-evaluation of its status confirms that Benson & Irwin were justified in recommending its transfer from the Pycnonotidae to the Turdidae. However, their decision in 1975 that the species *stictigula* and *orostruthus* are congeneric is now seen as unsustainable. The 2 taxa differ in a wide range of both morphological and plumage features, especially over the ventral surfaces. *M. orostruthus* differs from *stictigula* in having a longer bill, the tomium of the maxilla strongly notched back from the tip, and the lower mandible swept-up towards its apex to impart a somewhat retroussé or awl-shaped aspect to the bill when viewed laterally (Fig. 1). The wing-formula also varies, with the first primary (from outermost inwards) the shortest, primaries 2-5 increasingly longer, with the 5th the longest of the series. The tail profiles are comparable.

Ventrally, the plumage facies of the 2 species are widely divergent; *orostruthus* has the malar surfaces and fore-throat pale yellowish, lightly scaled with olive, the remainder of the underside being light primrose yellow, with the breast and sides heavily striated with rather nebulous greyish olive blotches, the flanks almost immaculate dark grey to brownish olive. In contrast, in *M. stictigula* the well-demarcated throat-patch or gorget has the ground pale vinaceous buff, heavily transversely barred with black (hence the name *stictigula),* the rest of the surface deep vinaceous rufous, the flanks overlaid with saturated olive or olive-brown.

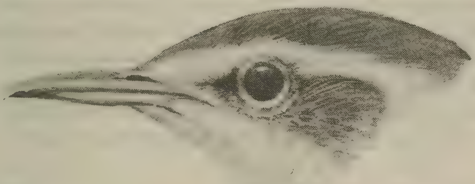
The long, notched and awl-shaped bill, very short rictal bristles and bulbul-like, or even rock pipit-like, ventral aspect of *M. orostruthus* reveal the basis of the reasoning behind Vincent's initial referral of this species to the genus *Phyllastrephus* Swainson, 1831.

We now consider it inadvisable to continue to associate *orostruthus* and *stictigula* as congeneric, but treat both as members of the Turdidae, proposing for the former the

genus **Arcanator** nov.

Type. Phyllastrephus orostruthus Vincent, *Bull. Brit. Orn. Cl.* (1933) Vol 53, p. 133: Namuli Mtn, northern Mozambique, at 4800 ft a.s.l. (15°21′S, 37°04′E).

Diagnosis. Arcanator orostruthus (Vincent) has the dorsum, wings and tail comparable to *Modulatrix,* as recently defined by Irwin & Clancey (1985), but the underside is markedly different, lacking the development of a barred gorget and lacking rufous to any part of the ventral surface, being entirely pale yellowish, darker over the ground of the breast and sides, these parts heavily blotched and streaked with greyish olive or dark olive, heaviest over the breast; flanks almost immaculate olive. Wing-formula differs with 5th primary longest, as opposed to 7th in *stictigula.* Bill markedly longer, the mandible more strongly notched back from the tip and the maxilla more sharply swept-up terminally, effecting a more retroussé or awl-shaped outline to the bill (Fig. 1). Rictal bristles very short.



Lateral aspect of head of adult of the Dappled Mountain Robin *Arcanator orostruthus* (Vincent).

Monotypic, but divisible into 3 races, from north to south as follows:

(a) *A.o. amani* (Sclater & Moreau), 1935: Amani, East Usambara Mts, northeastern Tanzania.

Paler over upper-parts, wings and tail than nominate; face also paler. Below more strongly yellowish, the pectoral and lateral blotching warmer, less cold greyish olive. Wing of type 87.5 mm.

Known only from the East Usambara Mts.

(b) *A.o. sanjei* (Jensen & Stuart), 1982: Mwanihana Forest, Uzungwa Mts, eastern Tanzania.

Similar to the nominate race over the upper-parts, wings and tail, but more olive tinged and base of tail dull tawny-olive rather than chestnut. Below, with blotching darker and heavier. Somewhat larger (wing of type 90.5 mm *versus* 83 mm in *M.o. orostruthus)* and bill rather heavier.

Known only from the Uzungwa Mts.

(c) *A.o. orostruthus* (Vincent), 1933: Namuli Mtn, northern Mozambique.

Upper-parts darker reddish olive-brown, merging to chestnut over the rump and upper tail-coverts. Wings reddish olive, the primaries paler on the outer vanes. Tail dull vinous chestnut. Venter pale primrose yellow, the breast and side heavily blotched and streaked dark greyish olive; flanks pale olivaceous.

Known only from Namuli Mtn. Perhaps as far south as Mt Gorongosa.

Gender. Masculine.

Range. Forests within the Tanganyika-Nyasa montane forest group of Moreau (1966), in northeastern and eastern Tanzania, south to the interior of highland Mozambique. Restricted to evergreen forest, perhaps more in the understorey and not the ground stratum as in *Modulatrix.*

Etymology. Arcanator, from Latin *arcanus* secret or hidden – that which remains obscure.

Discussion

Two proposals have been made why *Arcanator orostruthus* should be so uncommon. Hall & Moreau (1966) suggested that it had been over-run and largely replaced by the ubiquitous forest bulbul *Phyllastrephus placidus* which forages in the lower vegetation, but seldom on the ground. This idea lost support when it was shown that *orostruthus* was not a bulbul and competition therefore unlikely. More recently Stuart (1981) has argued, on the basis of *stictigula* and *orostruthus* being congeneric and therefore ecologically similar (which no longer applies), that *M. stictigula* was more likely than *P. placidus* as a competitor with *A. orostruthus* (whose ecology is virtually unknown), noting that *orostruthus* occurs in intermediate level forests and survives in 2 (now 3) known localities, one where *stictigula* is very rare (East Usambaras) and another where it is absent (Namuli). Since then, however, *orostruthus* has been collected in the Mwanihana forest, in the Uzungwa Range, Tanzania, where *stictigula* is also found, which further weakens Stuart's argument. It was also suggested by Stuart that where *stictigula* is absent in low-lying forests, it may be replaced there by the babbler *Trichastoma (Illadopsis) rufipennis,* which is mostly a ground feeder.

If the rarity of *orostruthus* has resulted from interspecific, as opposed to intergeneric, competition, the question may be posed as to how long a less successful species can continue to survive independently in 3 widely sundered localities, with the added possibility that there are other unknown localities. Conceding well-marked subspecific differentiation, such separation can only have been longstanding; it must certainly pre-date the climatic optimum at c. 6 000 BP and was presumably prior to the onset of the extreme aridity of the last glacial period that ended around 18 000 BP (Sarnthein 1978; see also Dowsett 1980). It is improbable that an 'unsuccessful' species could have survived over such a time span at the low levels of individual density which apply to the Dappled Mountain Robin. It is more likely that *A. orostruthus* is in some way ecologically specialised, with a naturally low density throughout its range which is unrelated to competitive factors. *A. orostruthus* is unlike any other Afrotropical forest turdine in colour, which may be a reflection of differences in ecology. There may be an adaptive advantage in possessing a bulbul-like colour pattern, as also in the structurally *Phyllastrephus*-like bill.

We do not doubt that the plain-tailed erithacine genera of Afrotropical forest robins to which *Modulatrix* and *Arcanator* belong are monophyletic. They constitute an important evolutionary element in the forest avifauna, have an essentially tropical distribution and are probably primitive. Hall & Moreau (1970) noted that about one third of the living species of Turdidae occur in the Afrotropical region, where the family shows a wider range of adaptability and choice of habitat than any other group of passerines. There are accordingly strong grounds for believing that the early radiation and diversification of the Muscicapidae *sensu* Olson (1984) may have been an Afrotropical event. Not unexpectedly, the least derived and more primitive members of this radiation would be among the Turdinae, in particular amongst the erithacine genera. All the Turdinae are unspecialised (in the relative sense) arthropod gleaners in the forest ground stratum, and it would not be surprising if some of the most primitive among them were to lack a derived syringeal morphology (confirmed at present only in *Modulatrix).* This argument neither contradicts nor invalidates Olson's suggestion that a derived syringeal morphology and the possession of the 'turdine thumb' indicates a common ancestry, though it may now be necessary to modify the definition in this regard to accommodate the muscicapine radiation.

If the Old World insect eaters in the Muscicapidae are of Afrotropical origin, such a view would be consistent with the concept of a parallel radiation of the Timaliidae in Asia as a sister group. It also remains highly probable that some present-day Palaearctic species, such as the European Robin *Erithacus rubecula,* form an integral part of the same evolutionary focus of erithacine genera; however, it is beyond the scope of the present discussion to consider the implications of relationships of this type amongst Palaearctic elements. It suffices to remember that the earlier Tertiary avifauna of Europe had strong Afrotropical affinities and included representatives of now wholly tropical families (Olson 1985). It would be surprising therefore if parts of extra-tropical Europe had not played a role in the early diversification of the Muscicapidae and that some of their descendants were not still part of the present-day Palaearctic avifauna.

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Some range extensions and other unusual records of Andean birds

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The knowledge of distribution of Neotropical birds is still fragmentary. A recent upsurge of interest in Andean birds has led to numerous range extensions, discovery of new taxa, and above all an impression of disjunct distributions, even of widespread taxa (see e.g. Graves 1985). Yet, areas without easy access by road must be regarded as largely unknown, and only the few, traditional collecting sites can be considered at all well surveyed.

Four expeditions by the present authors led to some new distributional data that fell outside the scopes of the main expedition reports (see reference list in Fjeldså 1985). Some of these, representing mainly altitudinal and horizontal range extensions, are compiled here. The field work comprises travels by Krabbe (with O. Jakobsen) from September 1978 to April 1979 in Ecuador, Peru, Bolivia, Brazil and Argentina, and from June to October 1983 and March to July 1984 in Ecuador and Peru, by Fjeldså from September 1977 to February 1978 in Peru (with J. E. Wasmuth), September to October 1981 in the Eastern Andes of Colombia, October to December 1981 in Peru, Chile and Argentina (with O. H. Post and D. Boertmann), and finally by both authors together from November 1983 to February 1984 in Peru, Bolivia and Argentina. Most studies were in well known areas, but a few, previously unexplored or poorly known sites were also visited, e.g. the southeastern part of Cordillera Zapote Najda (first camp on north bank of Río Culebrillas, c. 78°35′15″W, 3°1′6″S, second camp on south bank of Río Culebrillas, c. 78°31′5″W, 3°0′55″S), and the Cutucú Mts, both in Morona-Santiago SE Ecuador, El Placer in northern Esmeraldas, NW Ecuador at c. 78°35′W, 0°53′N, Cordillera Condor in N Peru, and the barren basaltic plateau Meseta de Strobel between Lakes Strobel and Cardiel, Sta Cruz, Argentina. Some of the collected specimens have been compared directly to specimens in ANSP, AMNH and LSUMZ (abbreviations explained in acknowledgements).

TITICACA FLIGHTLESS GREBE *Rollandia microptera*

On 21 Dec 1983 c. 50 adults and juveniles were seen on Laguna Capisco between Lake Arapa and the Huancane river N of Lake Titicaca, Peru. Not seen here or in neighbouring lakes in 1977. Probably sometimes spreads across flooded diluvial plains in periods of exceptionally high water level and establishes (temporary?) small breeding populations outside the known range (Río Desaguadero and Lakes Titicaca, Umayo and Arapa).

CATTLE EGRET *Ardeola ibis*

Can now be seen on most large areas of rushy pastureland in the northern Andean highlands, especially during the northern hemisphere winter. Forages all over the Bogotá and Ubaté savannas in Colombia. On 11 Oct 1981, over 1000 were counted near a roost in Laguna Herrera. Regularly present around Lake Junín at 4080 m in Junín, central Peru (Fjeldså 1983), and it now breeds there annually in small numbers (F. Tueros Aldana). On 13 Nov 1983, J.F. saw 3 nests from which young had just fledged. Although many Cattle Egrets seen in the Andes may be migrants and non-breeding immatures from N America, evidently from this record sedentary Andean populations occur as well. Other potential nesting areas (judging from the presence of birds and suitable habitat) are Pampa de Anta at 3200 m near Cuzco, and the Titicaca area, 3840 m.

GREAT EGRET *Egretta alba*

Visits lakes throughout the Andean puna zone, but has not been recorded nesting. A few pairs annually make unsuccessful breeding attempts at Lake Junín (F. Tueros Aldana).

LITTLE BLUE HERON *Egretta caerulea*

Wanders to several wetlands in Depts. Cundinamarca and Boyacá, Colombia, up to 3015 m at Lake Tota. Only single birds are seen. One adult photographed 14 Dec 1983 at Lake Tungasuca, 3750 m, Cuzco, Peru.

WHITE-CHEEKED PINTAIL *Anas bahamensis*

On 7 Nov 1981, 4 adults of this mainly subtropical species were seen near Punta Arenas in Magellanic Chile. One was also seen 11 Dec in Río Gallegos, Sta Cruz, Argentina. Blake (1977) mentions La Pampa Argentina and Bío-Bío Chile as the southern limit, but Venegas (1979) mentions records in the Magellanic zone.

RED SHOVELER *Anas platalea*

Single drakes noted 23 Nov 1977 in Lake Umayo near Puno, and 13 Dec 1983 in Lake Moina, 27 km east of the town of Cuzco, Peru. In both cases Blue-winged Teal *Anas cyanoptera* were near for comparison. Although apparently rather sparse as a breeding bird in the southernmost part of the continent, we found enormous moult assemblies Nov-Feb at 700-1200 m on the upland plateau inland of Sta Cruz. Extrapolation from a census of 118 lakes Feb 1984 on Meseta de Strobel suggested c. 20,000 birds on this plateau alone.

ROSY-BILLED POCHARD *Netta peposaca*

Recorded by Blake (1977) south only to Río Negro, 41°S, in Argentina. However, it is known S to Magellanes, Chile (Venegas 1979), and may be expanding its range. Common near Punta Arenas at the western end of the Magellanic strait, Nov 1981. One pair seen 12 December 1981 in Río Gallegos, Magellanic Argentina. Not uncommon as a spring visitor to lakes at 700-1000 m near the base of the Patagonian Andes (Lange 1981, and information from rangers of Fundacion Vida Silvestre). In Dec 1981, altogether 44 birds were seen at 6 out of 18 lakes visited on the foothill plateau immediately south of Río Santa Cruz.

MAGELLANIC PLOVER *Pluvianellus socialis*

Jehl (1975) estimated a total of 1000 birds, breeding only in Magellanic lowlands. In recent years has nested regularly at Laguna de Escarchados (c. 5 pairs) and Laguna Salinas at 700 m immediately S of Río Santa Cruz (e.g. Lange 1981), and on a basaltic meseta near Laguna Viedma (A. Johnson), all inland localities. The visit in Feb 1984 suggested c. 100 pairs breeding at 800-1200 m on Meseta de Strobel.

BLACK-NECKED STILT *Himantopus mexicanus*

Recorded from few highland sites; no information about breeding. Nesting colonies of 8-10 pairs occur annually outside the village of Ondores at Lake Junín (F. and J. Tueros Aldana). 21 birds (including juveniles) in Lake Tungasuca, Cuzco, Peru, and numerous birds on the plains around Ríos Huancane and Ramis near Lake Titicaca, suggest possible breeding here as well. Most birds correspond to nominate *mexicanus,* but some *melanurus*-like and intermediate individuals were seen in the 2 last mentioned areas.

GREY PLOVER *Pluvialis squatarola*

One seen near Lake Junín, Junín, Peru, 23 Nov 1983, is the third record from the puna zone. Said to occur here regularly with Lesser Golden Plover *Pluvialis dominica,* Feb-Mar (F. Tueros Aldana).

LESSER GOLDEN PLOVER *Pluvialis dominica*

A bird in winter plumage was photographed and tape-recorded at Laguna del Limpio, 3850 m, at the foot of Volcán Cotopaxi, Cotopaxi, Ecuador, 9 Oct 1983. Documented records in the high Andes are few (but see Fjeldså 1983).

SEMIPALMATED PLOVER *Charadrius semipalmatus*

One seen on 15 Dec 1977 at Laguna Lagunillas, 4160 m, western Puno, Peru, is the second record from the puna zone.

WHIMBREL *Numenius phaeopus*

One seen on 5 Jan 1984 at the northern end of Lake Poopó, Oruro, Bolivia, 3680 m, is the first record for Bolivia, and the second for the high Andes (Fjeldså 1983).

FRANKLIN'S GULL *Larus pipixcan*

In recent years seen at several localities away from the Pacific coast. Additional records: Lake Junín (see Fjeldså 1983), one on 23 Nov 1977 at Lake Umayo, and a few hundred Dec 1977 at Lake Lagunillas, both in Puno, Peru; 3 adults photographed in the harbour of Comodoro Rivadavia, Chubut, Argentina, 22 Feb 1984. Together with observations in Córdoba, Argentina (Nores & Yzurieta 1980), the impression is of a regular dispersal from Peru across the Andes to the Argentinian coast.

LARGE-BILLED TERN *Phaetusa simplex*

Known only as a casual visitor to the highlands, but local people knew it as regular (seasonal?) at Lake Tota (3015 m), Cundinamarca, Colombia. 1-4 seen here daily, Sep 1981 by J.F.

RUFOUS-BELLIED SEEDSNIPE *Attagis gayi*

On 15 and 21 Aug 1983, 2 flocks, of 60 and 70 birds, were seen and tape-recorded at a large *Distichlis* bog below a glacier in Junín, Peru, c. 3 km from the border of the Dept. of Lima, at 4600–4650 m. They were feeding on the neighbouring slopes, and regularly flew over the bog, but even when the 2 flocks flew close past one another, they did not mix. A flock of 19 and a group of 4 birds were seen at the same site, 11-13 Nov 1983. Large flocks thus seem to be a seasonal phenomenon, as also noted in White-bellied Seedsnipe *A. malouinus* (Johnson 1965). *A. gayi* is poorly known and has not previously been recorded in groups of more than 4 birds.

DARK-BILLED CUCKOO *Coccyzus melacoryphus*

One seen, 24 Oct 1978, presumably a lost austral migrant, at close range for over 5 minutes, at 3600 m, above the town of Cuzco, Peru. Normally found in the tropical, occasionally subtropical zone (Schauensee 1971).

CHIMNEY SWIFT *Chaetura pelagica*

Up to 5 seen in the town of Cuzco, Peru, at 3500 m, on 1 and 6 Dec 1983. Mr B. Walker, resident in Cuzco, informed us that the birds arrived on 25 Nov, and that he had never seen the species there during his 5 years of residence. Known to migrate along the Peruvian coast as far south as Mollendo, Arequipa, where it is always seen on southward migration (R. A. Hughes). Not yet recorded in Chile.

BUFF-TAILED SICKLEBILL *Eutoxeres condamini*

Usually regarded as an upper tropical and subtropical species (e.g. Parker *et al.* 1982), but 3 males with medium developed testes and fresh plumage (one still in body moult) were collected at 2760 m in roadside second growth in temperate forest 4 Aug 1983, above the Carpish tunnel, Carpish Mts., Huánuco, Peru.

GREENISH PUFFLEG *Haplophaedia aureliae*

5 males and 1 female were collected at 1700–2100 m in the central part of the previously unexplored Cutucú Mts, Morona-Santiago, SE Ecuador by the

Zoological Museum of University of Copenhagen (ZMUC), Apr 1984, and by ANSP, Jun-Jul 1984. On average they are darker- and more coppery-rumped, and have broader, greyish white (rather than buffy) scaling on the underparts than 12 males and 4 females of *russata* from NE Ecuador (Río Pastaza, lower Sumaco, Oyacachi, ''Ecuador''). There is no difference in measurements. While 5 Cutucú birds have rumps of a darker coppery tone than any *russata, caucensis,* or *aureliae* examined, one Cutucú male can in this respect be matched by 1 (of 16) *russata,* 3 (of 18) *caucensis,* and 2 (of 12) *aureliae.* The Cutucú female has the puffs wholly white like 4 females of *russata,* while only 2 out of 8 females of *caucensis* share this character, the remaining 6 having at least some buff admixed. The width of the scaling below in *caucensis* varies considerably, from almost absent to as wide as in Cutucú birds, and in both *aureliae* and *caucensis* the scaling varies from buff to greyish white. Cutucú birds come closest to *caucensis,* though the latter averages whiter on the belly, and with narrower, often buffy scaling on the underparts. The geographic variation thus involves a ''leap-frog'' element (cf. Remsen 1984). In *H. aureliae* the 8 forms currently recognized differ from one another in bill length, copperiness, puff colour, width and colour of the ventral scaling, and whiteness of the belly (Hartert 1900, Zimmer 1951, Schuchmann 1978, Romero 1979). As over 75% of the Cutucú birds are separable, a case can be held for giving them subspecific rank; but rather than adding yet another poorly differentiated form to this array on the basis of 6 specimens, we tentatively place Cutucú birds with *caucensis* until further material is available, thus allowing for greater variation in that form. An undescribed form with very heavy greyish white scaling below occurs in S Ecuador (R. Bleiweiss), and the Cutucú birds may show closer affinities to that form, than to *caucensis.*

MOUNTAIN AVOCETBILL *Opisthoprora euryptera*

A male collected at 3100 m on 13 Jun 1984, at the first camp in Cordillera Zapote Najda, SE Ecuador is the southernmost record of the nominate form. Does not seem to occur on Cerro Chinguela, north Cajamarca, Peru (Parker *et al.* 1985). A new subspecies is being described from south of Río Maranon (G. Graves).

LANCEOLATED MONKLET *Micromonacha lanceolata*

One seen and photographed, 25 Oct 1983, by the railroad, c. 1 km from Lita, Imbabura, Ecuador. First seen by Paul Greenfield. There is a previous sight record from Tinalandia, Pichincha (P. Greenfield), but this represents the first documented record of the species west of the Andes.

YELLOW-VENTED WOODPECKER *Veniliornis dignus*

One was collected on the crest of the central Cutucú Mts, at 2100 m, Morona-Santiago, SE Ecuador, 22 Apr 1984. It differs both from 2 specimens from Cauca and Narino, Colombia, and from 3 from Amazonas, Huánuco, and Pasco, Peru (specimens in LSUMZ) in having barred under tail coverts and a slightly shorter bill (both characters attributed to E Ecuadorian *baezae* – see Short 1982), in being paler and yellower, rather than buff below, and especially in having the outer rectrices uniformly greenish on outer web (only crossed by a narrow buff bar at tip), and barred with 4.5 mm wide dark bars on inner webs. In the other specimens both webs have 2.5–3.5 mm wide bars. The upper tail coverts are almost uniform in the Cutucú and the Huánuco specimens (a character attributed to *valdizani* – see Berlepsch & Stolzmann 1894, Cory 1919). They are distinctly barred in the other 4 specimens, although both Pasco and Amazonas are within the range of *valdizani.* We have not been able to compare the Cutucú bird with Ecuadorian specimens.

TYRANNINE WOODCREEPER *Dendrocincla tyrannina*

A female collected 16 Jun 1984, at 2240 m, at the second camp in Cordillera Zapote Najda, SE Ecuador, was compared with 24 specimens from Colombia, W Ecuador and Peru south to Cordillera Vilcabamba, Cuzco (specimens in LSUMZ, FMNH, AMNH, ANSP); it did not differ from these in colour or measurements of bill, wings and tail. The only previous authentic specimens from E Ecuador are 2 taken in the Pun region near the Colombian border, presumably at 2200 m. On the basis of their large measurements, particularly the bill, these latter 2 birds were described as a distinct species, *D. macrorhyncha,* by Salvadori & Festa 1899, but *macrorhyncha* has later (though doubtfully) been treated as a subspecies of *D. tyrannina* (Peters 1951). As the Andean slopes of E Ecuador are covered by unbroken suitable habitat, there seems no reason why *D. tyrannina* should not occur throughout; and as no distinct, known species of woodcreeper has a very limited distribution (J. V. Remsen), it seems most likely that *macrorhyncha* represents merely aberrant individuals. The Pun region, however, is still the only known locality for Giant Antpitta *Grallaria g. gigantea,* a very rare inhabitant of swampy forest (R. Bleiweiss).

TAWNY TIT-SPINETAIL *Leptasthenura yanacensis*

A female collected at 4250 m, 3 Dec 1983, in *Polylepis* woodland at Abra Malaga, Cordillera Vilcanota, Cuzco, Peru, does not differ significantly from Bolivian specimens. 2 birds from Cordillera Blanca, Ancash, Peru (LSUMZ) are too worn for direct comparison. Our specimen, and a tail-less female with a brood-patch collected at Abra Malaga by J. O'Neill, 17 Nov 1983, (now in FMNH), are the only 2 specimens taken in SE Peru, though their presence there has been recorded (Parker & O'Neill 1980). At the same site we collected 7 individuals of the White-browed Tit-spinetail *Leptasthenura xenothorax,* Jul and Dec 1983, a species otherwise known only from 3 individuals (USNM, LSUMZ).

MOUSE-COLOURED THISTLETAIL *Schizoeaca griseomurina*

On 12 Jun 1984, a male was collected at 3280 m at the first camp in Cordillera Zapote Najda, SE Ecuador. This is the northernmost record of the species. Birds just to the north (upper Palora valley, Volcan Sangay) are typical *S. fuliginosa. S. griseomurina* has recently been recorded from N Peru (Parker *et al.* 1985).

APURIMAC SPINETAIL *Synallaxis courseni*

Recently described on the basis of 3 museum specimens (Blake 1971). We studied this species 7-9 Dec 1983, in the isolated type locality, Bosque Ampay, a *Podocarpus* forest, situated above Abancay in Apurimac, Peru. With extrapolation we estimated the population to be 250-300 pairs. Vocalizations and behaviour were indistinguishable from *S. azarae* and *S. elegantior,* undoubtedly its closest relatives. Usually in pairs, they foraged low, occasionally up to 3 m, in dense undergrowth, vines, bamboo and tangles in the *Podocarpus* forest, and in thickets along small streams below the forest, apparently without very specific habitat requirements. 3 specimens in ZMUC, and an additional 8 specimens in MJPL, LSUMZ and FMNH, all have 10 rectrices and a long tail, a combination of characters shared with *S. elegantior;* while the intervening *S. azarae* has 8 rectrices, and a shorter tail, characters, or at least that of the reduced number of rectrices, which are probably the result of more recent evolution (Vaurie 1980). However, Vaurie did not guess the true relationship of *courseni,* and placed it with the vocally very different *S. brachyura* on the basis of subtle morphological characters.

SLATE-CROWNED ANTPITTA *Grallaricula nana*

On 16 Jun 1983, the female of a pair was collected on a steep slope with moss-covered trees and little understory at 2260 m at the second camp in Cordillera Zapote Najda, SE Ecuador. This represents the southernmost record of the form in E Ecuador. It hardly differs from 2 Colombian specimens of *G.n. nana* (ANSP), but is distinctly darker than 8 specimens from N Cajamarca, Peru (LSUMZ). The latter series shows considerable variation in the amount of dark edges below.

PERUVIAN ANTPITTA *Grallaricula peruviana*

An immature female (showing narrow rufous tips to the greater wing coverts) was collected in the transitional zone between wet subtropical forest with many recently wind-felled trees, and *Sphagnum*-covered cloud forest at 2100 m on the eastern slope, near the crest of the Cutucú Mts, Morona-Santiago, SE Ecuador, 21 Apr 1984. Compared with 3 females from N Cajamarca, Peru (LSUMZ), it appeared slightly less olive above, and with rather more black edges on the crown than the blackest headed individual, and also differed by its immature wing pattern. This is the first record from Ecuador.

ASH-COLOURED TAPACULO *Myiornis senilis*

The song was tape-recorded in *Chusquea* bamboo at 2750 m at the tunnel in Carpish Mts, Huánuco, Peru, 3-10 Aug 1983, and was later identified by T. A. Parker, who also heard the species at the same locality at a later date. These represent the first records south of E Libertad, Peru, where the species has only recently been found (Parker *et al.* 1985).

ORANGE-BANDED FLYCATCHER *Myiophobus lintoni*

Previously known from 7 specimens taken at 3 different localities: Portete de Tarqui and Mt Imbana, both in Loja, S Ecuador (Schauensee 1951), and Cerro Chinguela, N Cajamarca, Peru (Parker *et al.* 1985). A party of 2 males and 2 females, all immatures moulting into their first adult plumage, were mist-netted in roadside second growth in humid forest on a steep slope, at 2260 m, at the second camp in Cordillera Zapote Najda, SE Ecuador, 19 Jun 1984. The iris varied from pale greybrown to dark brown, and the bill from black maxilla, dull orange mandible with black tip, to black maxilla with dull orange base and sides and entire mandible. All had black tarsi and toes, and remains of insects in their stomachs. All the existing specimens except the juvenile from Cerro Chinguela and perhaps the type (which was not examined), have the wing-bars admixed with a few whitish feathers, a detail not mentioned in the literature, and perhaps attributable to immaturity.

RUFOUS-CROWNED TODY-TYRANT *Poecilotriccus ruficeps*

An adult male and an immature female were collected at the second camp in Cordillera Zapote Najda, SE Ecuador, Jun 1984. The adult male has a whitish throat, which is distinctly washed with buffy in the immature female. The species has not been recorded south of Tungurahua in E Ecuador (Traylor 1979), but the fairly similar form *peruvianus* is found in N Cajamarca, Peru.

BROWN-CHESTED MARTIN *Progne tapera*

In Colombia known only from lowlands. In Sep 1981, a few hundred of the southern migratory race *fusca* were present in the reed-beds of Lake Tota, 3015 m, and several thousand were seen on pastureland on the Ubaté savanna, 7 Oct 1981.

APOLINAR'S MARSH WREN *Cistothorus apolinari*

Previously recorded from reed-beds on the Bogotá and Ubaté savannas above 2600 m – highest locality Lake Tota, 3015 m (Varty *et al.* 1985). On Oct 1981 its distinctive song was heard among *Typha* sp. in the small subtropical Lake Pedropalo at 2000 m, on the slope towards the Magdalena Valley.

YELLOW-WINGED BLACKBIRD *Agelaius thilius*

Known to breed south to Chubut, Argentina (Paynter 1968). Several were seen, 14 Nov 1981 in tule marshes around Punta Bandera, at Lago Argentina, Sta Cruz, Argentina.

NORTH AMERICAN MIGRANT WARBLERS *Parulidae*

Migratory movements of *Parulidae* in S America are very poorly known. On 10-11 Apr 1979, migration was pronounced at el Chaco, Río Oyacache, near Baeza, Napo-Pastaza, E Ecuador, c. 1500 m. On 10 Apr we encountered 20 *Wilsonia canadensis* and 15 *Dendroica fusca* close around our camp. Next day, only 2 *Wilsonia canadensis,* 7 *Dendroica fusca* and 1 *Dendroica striata* were seen in the same area. On 3 Nov 1978, 2-3 *Geothlypis agilis,* 2 of which were netted and photographed, arrived at Explorer's Inn, Río Tambopata, Madre del Dios, SE Peru, where they were present at least till 16 Nov. The birds had obviously just arrived when first seen; they were foraging in the middle of an often used trail, which they would only reluctantly leave.

BLUISH FLOWERPIERCER *Diglossa caerulescens*

2 specimens collected at 2100 m on the crest of the Cutucú Mts, Morona-Santiago, SE Ecuador, 21 Apr 1984, are darker, especially on the breast and throat, than are 4 specimens from N Cajamarca, Peru (Cordillera Condor, Carmen Trail). More material is needed to prove the constancy of this difference.

EMERALD TANAGER *Tangara florida*

On 4-12 Jul 1984, 4 specimens were collected at El Placer, 670 m, in northern Esmeraldas, NW Ecuador. Also seen there commonly Mar 1979 and Oct 1983. These are the first specimens from Ecuador, but there have been sight records from Pichincha (Ridgely 1980). The species is distributed in Costa Rica and Panamá, and along the Pacific slope of Colombia, where it was known as far south as Narino.

OCHRE-BREASTED TANAGER *Chlorothraupis stolzmanni*

6 specimens collected 4-12 Jul 1984 at El Placer, 670 m, northern Esmeraldas, NW Ecuador were compared with 10 of *C.s. dugandi* from Río Munchique and from La Costa, both in Cauca, and from La Selva, Caldas Colombia (specimens in ANSP), and with 6 *C.s. stolzmanni* from La Chonta, El Oro, and "Ecuador" (specimens in ANSP, AMNH, FMNH, LSUMZ and ZMUC). *dugandi* differs from *stolzmanni* by having the crown washed with greyish rather than concolorous with the back, and by its paler and buffy, rather than warm yellow ochre central underparts. The El Placer birds average even paler below, and have greyer and slightly paler crowns than Colombian birds (only one Colombian bird can match the greenest-crowned El Placer bird). One LSUMZ specimen from Lita, Imbabura matches the El Placer birds

perfectly. Although not sufficiently different from Colombian birds to warrant subspecific recognition, the El Placer birds are clearly different from *C.s. stolzmanni* of W Ecuador. *C.s. dugandi* is known from the western Andes of Colombia, but has not previously been recorded in Ecuador.

RUFOUS-CRESTED TANAGER *Creurgops verticalis*

A male collected at 2000 m, 2 km E of Maldonado, Carchi, NW Ecuador, and another observed at 2350 m, 4 km further east, 28-29 Mar 1984 are the first records for W Ecuador. Known from W Colombia.

BLACK-BACKED BUSH-TANAGER *Urothraupis stolzmanni*

2 males collected at 3280 m, 12 Jun 1984, at the first camp in Cordillera Zapote Najda, SE Ecuador, represent the southernmost record of the species, previously known south only to Tungurahua (Paynter 1970). Their stomachs contained insects, seeds and berries.

WHITE-RIMMED BRUSH-FINCH *Atlapetes leucopis*

On 14 Jun 1980, one seen at 2750 m, at the first camp in Cordillera Zapote Najda, SE Ecuador, was very retiring, and followed a mixed species flock, foraging within 1 m of the ground in the darkest part of the forest undergrowth, moving quickly through the vegetation. This rare and local bird was previously known only from a few localities in southern Colombia and Ecuador.

THICK-BILLED SISKIN *Carduelis crassirostris*

On 3 Dec 1983 a male *C.c. amadoni* was netted from a flock, at 4250 m, in *Polylepis* woodland, Abra Malaga, Cordillera Vilcanota, Cuzco, Peru. Previously known only from Puno, Arequipa, and Tacna S Peru. Restricted to *Polylepis*.

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The type locality of *Anthus brachyurus eludens* Clancey, 1985

by Jack Vincent

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On page 134 of *Bull. Brit. Orn. Cl.* 105 P. A. Clancey described *Anthus brachyurus eludens.* Because I personally collected the type specimen when with Admiral Lynes, I may be permitted to establish accurately the type locality which, as Clancey's paper shows, remains in doubt.

Although it all happened more than 50 years ago I have still my daily diary of the 1933-34 *Cisticola* tour, and in it are many details of our journeyings, of the birds collected, and of their habitats. Clancey's paper states that the map coordinates written by Lynes on the type specimen's label are 04°04'S, 20°08'E. I can confirm that these are unfortunately incorrect. They indicate a point which is not only on the north side of the Kasai river, where we did no collecting, but also in dense primary forest where no short-tailed pipit would occur.

On that 4 November 1933 we were nearing the northernmost point of a journey into the (then) Congo's inner basin, made in order to determine the extent to which various *Cisticola* species extended into areas considered to be of primary forest country. Without knowledge of the area it is hard to appreciate how, when travelling from south to north, patches of woodland and open plain keep on occurring. They continue long after a traveller may be confident that the true gallery forest has been reached, and that all the more open country is now behind him.

Admiral Lynes has described the country in some detail in his 1938 paper 'Contribution to the Ornithology of the Southern Congo Basin' in *Rev. Zool. Bot. Afr.* 31, 1. As a matter of history I can certify that the type of *A.b.eludens* was obtained in the very last (northernmost) piece of open country on the route from Tshikapa through Luebo to Port Francqui.

Off and on for 180 miles we had been passing through increasingly large tracts of equatorial forest, but to our astonishment, when at about only 38 miles from Port Francqui (on 3 November 1933), we entered a strip of country which at the time I described as ''veritable open moorland''. It proved to be no more than about 7 miles long by 1 mile wide, but clearly deserved investigation.

We camped for the night at the plain's edge, and tramped over it the next morning. The only species of *Cisticola* apparently present were the expected *juncidis, natalensis,* and *brachyptera.* Accordingly Lynes settled down to do some sketching, whilst I continued to roam the grassland, to ensure nothing important had been overlooked. I wrote at the time that it was an attractive place, with an incredible view from the top of its ridge. Away to the north, over as many miles as the eyes could see on a clear morning, was a dark, unbroken mass of forest. It was evident, in fact, that at last we were at the true edge of the great central Congo block of primary, gallery forest.

Before returning to camp I had collected 2 birds. One was this new pipit, and I collected only the one example; no-one else has ever collected there since. Clancey selected this bird as the type (out of 23 specimens, none of them from the same area), because, as he states, its condition and locality indicated an established breeding area.

The other bird was a lark which in my notebook I jotted down as being ''probably *Mirafra africana*''. On page 73 of Lynes's already mentioned paper this lark was listed as *Mirafra fasciolata.* But on page 47 of James P. Chapin's 'The Birds of the Belgian Congo', Part 3, 1953, it appears under *Mirafra africana malbranti.*

The point at which the new *Anthus brachyurus eludens* was collected proved to be about 32 miles from Port Francqui, and the correct coordinates for its type locality are 04°22'S, 20°48'E. The nearest point to the collecting area named on any map was the "Petianga" which Lynes entered on the type specimen's label. But we had passed that small rail halt when still in the forest, shortly before reaching that unexpected area of open ground, for which the correct map coordinates are now supplied.

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Geographical contacts between the taxa of *Centropus* in Zaïre, with the description of a new race

by M. Louette

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Examination of the distribution ranges of *Centropus* spp. on the 'atlas' maps 253 and 254 of Clancey *in* Snow (ed.) (1978) shows that contacts exist, or may be supposed, between the ranges of the following vicariant taxa in Zaïre: (1) *C. leucogaster* and *C. anselli;* (2) *C. monachus* and *C. cupreicaudus.*

Basing myself mainly on the rich collection from Zaïre in KMMA, I have re-examined these contacts in order to evaluate the taxonomic relationships in these superspecies, and conclude that *neumanni* deserves specific rank and that the formation of a new subspecies in *monachus* is needed. This study became necessary because Irwin (1985) suggested recently a new phylogeny in *Centropus,* dismissing data on geographical contact, but using mainly one morphological character, namely either barring or its absence on the rump feathers and uppertail-coverts. In particular, he concluded that *leucogaster* and *anselli* are "not considered closely related (and) . . . clearly cannot be treated as members of a superspecies" and "the barred rump and uppertail coverts of *C. cupreicaudus* immediately set it apart (from *monachus*)".

In addition, I have examined specimens of *C. senegalensis* and *C. superciliosus* to appreciate subspecies delimitations in Zaïre (see sections C and D below).

A. *C. "leucogaster" neumanni* and *C. anselli*

The 'atlas' map (253) for the superspecies *C. leucogaster* can be accepted as accurate, though with some additions for *anselli* to be made in Congo-Brazzaville (Malbrant & Maclatchy 1949) and one in Kwango (Lippens & Wille 1976). The KBIN, however, has 2 specimens of *neumanni* from Yangambi (0°47'N, 24°28'E), only c. 30 km east from the easternmost *anselli* record (Isangi (0°47'N, 24°11'E): Chapin 1939, specimen 159162 in AMNH). It follows, therefore, from the 'atlas' map and current taxonomy (White 1965) that from west to east this superspecies is composed of the following parapatric taxa, separable into general plumage characteristics:

Colour: white belly, black breast:–

l. leucogaster: from Guinea-Bissau to easternmost Nigeria.

l. efulenensis: western Cameroon, possibly western Gabon (mentioned by Bannerman 1933, but unrecorded by Malbrant & Maclatchy 1949). The situation in Cameroon is given in more detail in Louette (1981).

Colour: brown belly and breast:–

anselli: from western Cameroon towards the Sangha River; Gabon, Congo and the left bank of the Zaïre River; an outlier in Angola.

Colour: white belly, black breast:–

"l." neumanni: the right bank of the Zaïre River in Zaïre Republic, virtually restricted to the area north of the Equator; this superspecies is apparently absent in the forest on the right bank of the Zaïre River, south of the Equator (see especially Prigogine (1971) for the well-explored Itombwe, where the only coucal is *C. monachus).*

Because of the existence of a brown-bellied form, squeezed between 2 white-bellied ones, some authors (see also Clancey *in* Snow (ed.) 1978) suggest that *leucogaster* is of Upper Guinea origin, and later displaced *anselli* from the northern part of its range. Furthermore, the resemblance in colour was considered enough evidence to unite the eastern and the western white-bellied populations into one species, different from *anselli.* In fact, the western and eastern white-bellied populations are most probably not in contact, because *anselli* occurs in eastern Cameroon; but the area of possible contact in northern Congo is virtually unexplored. White (1965) united the birds from Zaïre (formerly *C.l. neumanni)* with those from Cameroon under the latter's subspecific name, *C.l. efulenensis,* merely stating "averages smaller in east of range". I have re-examined specimens from the different populations and give measurements of adults in Table 1. Males and females were intermixed since many specimens were unsexed or apparently wrongly sexed, although it is generally known that females average larger than males. The tail in *Centropus* is often much worn or composed of growing feathers – only reasonably fresh plumaged specimens were used for Table 1.

TABLE 1

Measurements (mm) of *Centropus leucogaster, C. anselli* and *C. neumanni:* mean (range).

Taxon	Region	n	Wing	Tail	Total Culmen	Tarsus	Source
leucogaster leucogaster	Liberia to Nigeria	7	193.5 (183.5–210)	286.8 (5) (270–306)	40.8 (38–44)	49.1 (6) (47.5–51)	BMNH, NRMS
leucogaster efulenensis	Cameroon	13	193.5 (177–206)	275.2 (11) (251–311)	41.3 (39.5–44)	47.3 (12) (46–51)	MNHN, BMNH
anselli	Cameroon	12	187.8 (172–210)	283.7 (252–318)	38.7 (11) (35.5–41)	46.0 (43.5–49)	NRMS, MNHN, BMNH
anselli	Zaïre	25	187.0 (173–213)	285.0 (258–315)	38.3 (34–42)	46.0 (42.5–49.5)	KMMA, KBIN
neumanni	Zaïre	36	179.9 (165–198.5)	255.6 (234–299)	38.0 (35–41)	43.9 (38.5–48)	KMMA, KBIN

Note. Number in brackets after the mean indicates number of specimens measured if different from n.

It becomes clear that Upper Guinea *l. leucogaster* and *l. efulenensis* are noticeably similar in measurements and since they are also close in plumage characteristics, they are certainly conspecific and possibly will prove con-subspecific after a more detailed study.

A second conclusion is that *anselli* is very uniform over the whole of its range from Cameroon through Zaïre. For completeness, my measurements (mm) for 3 Angola specimens were: wing: 166.5, 176.5, 188 (av. 177); tail: 263, 269.5, 283 (av. 271.8); total culmen: 36.5, 35.5, 38.5 (av. 36.8); tarsus: 45.5, 47, 46 (av. 46.2).

Two of these specimens (224381 and 224380 in FMNH) are an adult male and female from Canzele (8°17′S, 15°11′E). The third specimen

(1910.5.6.306 in BMNH) is a ♀ from Ndala Tando (9°18′S, 14°54′E), not completely adult, since some barring remains on primaries and flanks. It is unusual in that the head is not completely black above, as is normal in the species, but is buffish, interspersed with some black feathers, each with a pale central line. No other immature (at least from Zaïre) has these characteristics. In measurements it falls within the ranges of the other populations (Table 1). The 2 adult specimens are decidedly small, but are within the range in Table 1, except for the short wing in the first specimen. It may be that new material from Angola would warrant the separation of the Angolan population subspecificially.

The third conclusion is that *anselli* is decidedly smaller than western *leucogaster* in wing, culmen and tarsus measurements, though not in tail-length. The eastern ''*leucogaster*'' *neumanni,* which White included in *efulenensis* is in fact smaller again than *anselli,* except in having about the same culmen-length. It belongs decidedly in a third size group. In plumage, whereas adults of *anselli* and *neumanni* are quite distinct, juveniles are very similar and difficult to differentiate from one another, so much so that the above mentioned specimen of Chapin's from Isangi could conceivably belong to either, but in the measurements (186–334–40–48.5), of course, it agrees well with *anselli,* and it has a very long tail.

Not a few adult specimens, on the other hand, show some particularities in plumage, indicating an approach to the other taxa. Among *neumanni,* in KMMA Nos 94483 (Bogazelema – 3°33′N, 20°34′E)), 19269, 19702, 26122, 26560, 34345 (Buta – 2°47′N, 24°50′E) and 36114 (Angumu – 0°10′S, 27°42′E), and in KBIN No 18526 (Yangambi) all have one, or a few, pale feathers on the throat. KMMA specimens 64608 (Tungudu – 0°45′N, 29°40′E) and 89437 (Boyeka – 3°03′N, 20°23′E) have many white feathers among the black on the throat. Among *anselli,* KMMA specimens 74744 (Bolima II – 0°59′N, 19°54′E), 80802 and 80948 (Yalokele – 0°46′S, 22°49′E) and 81434 (Bokela – 0°41′N, 19°57′E) show some black feathers among the buff chin, but especially 69007 (Yalokele); and also KBIN Nos 18156 and 18525 (Bomondja – 0°48′S, 23°10′E), and Yokolo Moma – 0°38′S, 22°57′E) all show black feathers on the throat, while the black of the sides of the neck descends more than usual towards the ventral side, and 2 of them (numbers 69007 and 18525) also have traces of a black breast band. These specimens indicate that there is some introgression from *neumanni* genes in *anselli* and *vice versa.* However, as far as their measurements are concerned, these specimens are each specifically distinct. Some of them are far removed from possible contact with the other taxon, and there is certainly no belt with intermediates which would indicate widespread hybridization, making necessary a hypothesis of conspecificity. Taking these factors into account I consider *anselli* and *neumanni* closely related paraspecies in one superspecies.

In Cameroon, on the western contact of *anselli* with *leucogaster efulenensis,* there are no such plumage particularities (Louette 1981), except that one specimen from Sakbayeme (4°02′N, 10°34′E) (1938/397 in MNHN) does have a few black feathers with white bases on the throat.

Probably the relationship of these 2 taxa is less close and this is corraborated by an analysis of their vocalisations by Chappuis (1974) – he places *leucogaster* and *anselli* in different sound groups. Nevertheless, *leucogaster* is the geographical counterpart of *anselli* in the west; and the differences in size as well as the mutual relationship with *anselli* of *leucogaster* and *neumanni,* convince me that the 3 are best treated as separate species. In my opinion belly colour is less important a character than size in *Centropus* and it may be that a white belly is a primitive character and that *anselli* has acquired the derived character of a brownish ventral colour in the same way as *''epomidis''*, a brown-bellied phase of *C. senegalensis.*

The hypothesis based on the distribution history of the group becomes now unnecessary, and one has from the west to the east 3 isolates which have acquired specific status:

1. *Centropus leucogaster* (with its rather poorly defined race *efulenensis)*
2. *C. anselli*
3. *C. neumanni*

B. *C.monachus* and *C. cupreicaudus*

The 'atlas' map (254) has some omissions and I have brought all relevant date together on Map 1. *C. monachus* is present in Lower Zaïre (see map and localities in Schouteden 1950) and in Angola, where it occurs at Canhoca (9°15′S, 14°41′E) (Neumann 1908), at Ndala Tando (Traylor 1960) and at 42 km N of Duque de Braganza (8°20′S, 16°10′E) (Pinto 1983). In the Shaba district of Zaïre, Dowsett & Prigogine (1974) reject the occurrence of *monachus* in the Marungu. Schouteden (1971) shows *monachus* at the locality Kasaji (10°21′S, 23°29′E), but it should be *cupreicaudus,* and to my knowledge *cupreicaudus* has only once been found in Kasai, at Mutombo Mukulu (8°00′S, 24°00′E), very close to Shaba (see Schouteden 1964). In Kasai, the only localities for *monachus* are Kasansa (6°33′S, 23°44′E) and Lusambo (4°58′S, 23°27′E); the others, Luluabourg (5°54′S, 22°25′E) and Gandajika (6°45′S, 23°57′E), mentioned in Schouteden (1964) and reproduced in the 'atlas', pertain to *senegalensis.* However, since *monachus* occurs in the vicinity of *cupreicaudus* in the Upemba (in fact only the first 6 specimens from Mabwe (c. 8°39′S, 26°30′E) in Verheyen (1953: 323) are *monachus,* the others being *superciliosus* and *senegalensis*), there could conceivably exist a region of overlap in northwest Shaba. Verheyen gives information on their ecological exclusion in Upemba and considers the appreciable size difference as sufficient to prevent hybridization. Pinto (1983) delimits the distribution in Angola; but here also *monachus* and *cupreicaudus* may come in contact, as supposed already by Stresemann & Grote (1929).

Neumann (1908) described his Angola specimen of *monachus* as a new race (*angolensis*), but Friedmann (1930) considered its separation doubtful, as a race or even as an intermediate between *monachus occidentalis* and *monachus cupreicaudus* (then so considered). Traylor (1960) gave wing measurements showing Angolan *cupreicaudus* was larger (7 specimens, 208-222 mm) than Angolan *monachus,* which he said was inseparable from *monachus* in Gabon and Cameroon (20 specimens, 177–204 mm). He considered, however, that *cupreicaudus* and *monachus* were conspecific ''since the two forms approach each other in size in Nyasaland [with *cupreicaudus songweensis* in mind] and in color in Angola''. Pinto (1983) measured 15 specimens of *cupreicaudus* from Angola (mm): wings ♂♂ 212–224, ♀♀ 210–230; tails ♂♂ 225–246, ♀♀ 225–270.

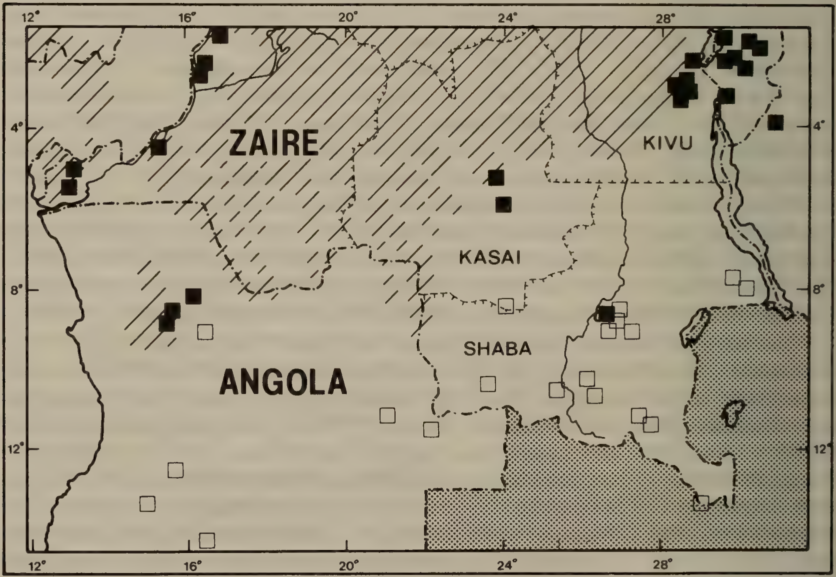
TABLE 2

Measurements (mm) of *Centropus monachus* and *C. cupreicaudus:* mean (range).

Taxon	Region	n	Wing	Tail	Total Culmen	Tarsus	Source
C. monachus	S.W. Zaïre	9	175.8 (168.5–196.5)	203.9 (194–233)	35.9 (7) (33.5–40)	43.4 (39.5–46.5)	KMMA
	Kasai	12	182.7 (10) (170–199.5)	210.5 (10) (200.5–226)	38.4 (36–41.5)	44.4 (42–49.5)	KMMA
	S. Kivu + Rwanda	20	193.1 (178–207.5)	224.0 (19) (202–247.5)	38.8 (35–42.5)	44.5 (41.5–47.5)	KMMA
	Mabwe (Upemba)	5	169.8 (160–177)	199.5 (185–210)	35.2 (34–37.5)	41.1 (40–42)	KBIN
C. cupreicaudus	Shaba (+1 Kasai +1 Ndola, Zambia)	19	215.8 (205–228)	239.4 (218–262)	41.1 (16) (37–47)	50.3 (44.5–57)	KMMA, KBIN
	S.W. Tanzania	4	221.8 (215.5–230)	243.8 (233–255)	39.8 (36.5–41)	53.9 (51.5–55)	ZMB

Note. Number in brackets after the mean indicates number of specimens measured if different from n.

I find that the same abrupt change that Traylor found in measurements between *monachus* and *cupreicaudus* occurs as well in Zaïre (see Table 2). Verheyen (1953) remarked that Kivu *monachus* is rather large but nevertheless considered *monachus* and *cupreicaudus* conspecific, notwithstanding the fact that he had recognised both taxa as virtually sympatric in Upemba. The series mentioned by him from Mabwe, Upemba, is separated by c. 400 km from the Kasai and c. 700 km from the Kivu records. This apparently isolated 'pocket' of *monachus* is definitely situated in "*cupreicaudus* country", whereas the other populations are seemingly far away from that species' range (see Map 1). Conceivably *monachus* has a continuous circum-forest distribution.



Map 1. Specimen and acceptable relevant literature localities for *Centropus monachus* ■ and *C. cupreicaudus* □. Data for Zambia, where *C. cupreicaudus* is widespread (see Benson *et al.* 1971) are excluded. The equatorial forest is in oblique shading.

Plumage characters, especially the amount of barring on the rump, are quite variable in both species and do not show the uniformity that Irwin (1985) implies. Among the 12 *monachus* from Kasansa, Kasai, only 9 have greenish rectrices, the 3 others having them bronze, a characteristic of *cupreicaudus.* But a specimen from Rwanda (Ruyenzi – 2° 26′S, 29° 50′E) also appears to have a bronze, not greenish, wash and in some Kivu specimens the rectrices are dark, without gloss, probably due to wear; these are far from a possible *cupreicaudus* contact.

The barring on the uppertail coverts is also variable; among the same 12 specimens from Kasai, 10 are definitely barred, 2 others are not. This variation in barring is also true in Kivu and Lower Zaïre *monachus.* Similarly among the 19 *cupreicaudus* from Shaba, 11 have well banded uppertail-coverts, while the 8 others vary from almost unbanded to only faint indications. This individual variation in both taxa is not related to age (only adults are mentioned here) or to sexual dimorphism.

Therefore, in southern Zaïre the actual colour of the tail feathers is useful only in fresh specimens, when the bronze colour in *cupreicaudus* is generally most apparent. The amount of barring of the uppertail-coverts is decidedly not a good specific character. Size is the best criterion to separate *monachus* from *cupreicaudus.* (Cf. Traylor 1960 (and see above) for Angola.) I do not find definite intermediates in Kasai or Shaba and conclude that *C. monachus* and *C. cupreicaudus* are allospecies in the same superspecies, as indeed Clancey *in* Snow (ed.) (1978) advocates, *contra* most earlier authors; but they are certainly more closely related than Irwin (1985) surmised. Table 2 also shows my measurements for 4 specimens of *cupreicaudus* from Tanzania, which according to Britton (1980), belong to nominate *cupreicaudus.* Indeed, they are at least as large as the specimens from Shaba, whereas the localized race *c. songweensis* appears to be smaller (Benson 1948).

The very small Upemba *monachus* must be included in that taxon. It lives in the swamps of Upemba, apparently isolated in the woodland savanna district, whereas the other *monachus* populations are on the fringe of richer forest vegetation. As far as the Upemba population's biometry is concerned, it is not in the cline starting with the small southwest Zaïre and Angola coucal, through the larger Kasai bird towards the much larger Kivu-Rwanda individuals. All these populations are nowadays usually placed in the taxon *C.m. fischeri* Reichenow (type from Kavirondo), of which *C.m. occidentalis* Neumann (type from Gabon) and *C.m. angolensis* Neumann (type from Angola, as mentioned above) are considered synonyms by White (1965). There may be evidence enough to use *occidentalis* for the population west of Uganda, as e.g. advocated by Friedmann (1930), but the Upemba bird deserves a new name:

Centropus monachus verheyeni subsp. nov.

Description. Differs from other races and populations examined *(monachus monachus; m. fischeri; m. "occidentalis")* in smaller size (see Table 2). The uppertail coverts are faintly barred or unbarred and fresh rectrices are greenish, a few old used ones dark, but not bronzy.

Distribution. Only known from Mabwe, Upemba, Shaba Province, Zaïre.

Holotype. No 4368 of the Parc National de l'Upemba – Institut des Parcs Nationaux du Congo Belge collection, temporarily housed in KBIN, where it is registered as No 23862. From Mabwe, alt. 585 m, 9 February 1949, ♂. (See Verheyen 1953: 323.)

Measurements of holotype. Wing (chord) 170.5 mm (Verheyen gave 172 mm); tail 210 mm; exposed culmen 37.5 mm; tarsus 41.5 mm; weight 173 g.

Material examined. Besides the holotype, 4 other adult specimens of *C. monachus* were examined: Nos 1129, 1238, 4319 and 4562, all from Mabwe. These are mentioned in Table 2 (only one female is included, however). One additional specimen from Mabwe (No 4399) is not in completely adult dress (measurements: 166, 193, 32.5, 40.5 mm).

Etymology. The species is named after Prof. Dr R. K. Verheyen, the well known Belgian ornithologist, who contributed much to Zaïrean ornithology, before his untimely death in 1961, aged 54.

C. *C.s. senegalensis* and *C.s. flecki*

The 'atlas' map (255) shows clearly 2 disjunct populations in *C. senegalensis*. The southeast population from the Upemba to the south has been named *C.s. flecki* (not on the 'atlas') and the remainder and major part of the population is the nominate from Kasai northwards. Verheyen (1953) collected *flecki* at Kilwezi (9°06′S, 26°46′E) (2 specimens) and also at Kabenga (8°21′S, 26°04′E) (his specimen No 5051, is mentioned under *monachus*).

The KMMA has a specimen from Katofio (11°03′S, 28°02′E) and another from Kasapa (11°34′S, 27°25′E) (see Schouteden 1971). Contrary to Verheyen's (1953) and White's (1965) opinions all 5 Shaba specimens are clearly *flecki,* although the difference in colour from the nominate race is slight. In fact, there is an apparent gap of at least 350 km between the Upemba and the area in Kasai (Kabinda) where the nominate race begins to appear, but the intervening country is not well prospected. It is possible that their ranges are in fact contiguous.

D. *C. superciliosus superciliosus* and *C.s. loandae*

Chapin (1939) found the boundary between the nominate and *loandae* hard to fix and "probably somewhere near Rutshuru, Kivu, Zaïre, 1°11′S, 29°27′E . . .", adding "specimens from Lake Albert do seem a little dark but eight skins in the Congo Museum from Mahagi Port to the Rutshuru Plain may be referable to the typical race". This may be so, but the differences between these 2 races are slight and I cannot separate birds from northeast Zaïre.

List of abbreviations:

AMNH:	American Museum of Natural History, New York.
BMNH:	British Museum (Natural History), Tring.
FMNH:	Field Museum of Natural History, Chicago.
KBIN:	Koninklijk Belgisch Instituut voor Natuurwetenschappen, Brussels.
KMMA:	Koninklijk Museum voor Midden-Afrika, Tervuren.
MNHN:	Muséum National d'Histoire Naturelle, Paris.
NRMS:	Naturhistoriska Riksmuseet, Stockholm.
ZMB:	Zoologisches Museum, Berlin.

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Notes on Philippine Birds, 9. Reidentification of a unique stint specimen

by Kenneth C. Parkes

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Steere (1890: 26) listed Temminck's Stint *Calidris temminckii* as having been taken on Negros Island by the 1887-1888 Steere Expedition to the Philippines, but as typically in this paper, gave no exact locality, date or number of specimens collected; the month of collection can be determined by his itinerary (p. 5), as Negros was visited only in February 1888. This record has been cited in all subsequent ornithological literature for the Philippines, and is, to the best of my knowledge, the only published Philippine specimen record for Temminck's Stint.

There were at least 2 specimens originally identified as *C. temminckii* in the Steere collection, as far as can be determined (the collection has been widely dispersed). One of these, in the British Museum (Natural History), was long ago reidentified as *C. ruficollis* (Sharpe 1896: 767). The other is now No. 17488 in the collection of the Denver Museum of Natural History (DM), Colorado, USA. The original Steere label specifies the collecting locality as Dumaguete, a city on Negros, and the date as ''Feb 4'' [1888]. The sex is given as male. The British Museum specimen, a female, was also collected at Dumaguete.

Through the courtesy of Mr Charles Chase III of the DM, I was able to borrow this specimen for re-examination. It is a taken-down mount, in mediocre condition, with small feathers missing in several areas. The bill was broken and barely hanging onto the head, but had been skillfully repaired by Mr Stephen Rogers of Carnegie Museum of Natural History (CM). The label of the Colorado Museum of Natural History (former name of the DM) attached to the specimen bears the correct date but the erroneous locality ''Siquijor''. The identification as ''*Erolia temminckii*'' was lined out, and ''*Calidris minuta*'' substituted in 1977 by Michael G. Pogue, an entomologist who worked briefly at the DM making an inventory of the bird collection. On the reverse of the label, Allan R. Phillips has written ''*ruficollis?*''. Having been identified as 3 different species of stint, re-examination of this specimen was clearly called for, and this was undertaken at the American Museum of Natural History (AMNH) in New York, which has a large collection of winter specimens of Palaearctic stints. I also studied the pertinent literature for identification, chiefly Prater *et al.* (1977), Wallace (1980), Cramp & Simmons (1983), and Veit & Jonsson (1984).

It was immediately clear that the specimen was *not* a Temminck's Stint as originally identified by Steere. The pattern of dorsal feathers, colour of outer rectrices, and/or other obvious characters served to eliminate that species and all other small stints except the Little Stint *C. minuta* and Red-necked Stint *C. ruficollis* from further consideration.

The Negros specimen is an adult in basic plumage (the ''adult non-breeding'' of Cramp & Simmons 1983 and ''W[inter] P[lumage]'' of Prater *et al.* 1977). Many of the characters listed by Cramp & Simmons (1983: 300-303) will separate ''most'' individuals of *minuta* and *ruficollis,* but a significant number of the specimens in the AMNH showed overlap of these characters. An additional and fairly reliable character is the whiteness of the face of *ruficollis* (well illustrated in plate 3a of Veit & Jonsson 1984); note that pigmentation of the forehead does not reach the base of the bill, whereas it does so in most *minuta.* The Negros specimen lacks a number of forehead feathers, but under a lens, pigmented feathers can be seen to reach almost as far as the base of the bill.

Another seemingly reliable colour character for distinguishing between *minuta* and *ruficollis* is one that I have not seen described in the literature. In the Little Stint, the marginal and lesser upper wing coverts are conspicuously darker than the adjacent median coverts, whereas these feathers are essentially uniform in the Red-necked Stint. On all of the usable plumage characters, the Negros specimen matches *minuta.*

Measurements and the wing/tarsus ratio appear to offer the best method of distinguishing between basic-plumaged *minuta* and *ruficollis* in the hand. The wing of the Negros specimen measures 95 mm and the tarsus 20 mm. The wing length places it clearly with *minuta,* although the tarsal measurement

TABLE 1
Measurements (mm) of adult male *Calidris minuta* and *C. ruficollis*
(number measured given in brackets)

	C. minuta	*C. ruficollis*	Source
Wing length	92–99 (15)	96–108 (21)	Prater *et al.* 1977
	93–100 (16)	98–107 (37)	Cramp & Simmons 1983
Tarsus length	19–22 (9)	19–20 (11)	Prater *et al.* 1977
	19.8–23.2 (17)	17.9–20.8 (20)	Cramp & Simmons 1983

might be considered equivocal (Table 1). According to Prater *et al.* (1977), a wing/tarsus ratio greater than 5.1 indicates *ruficollis* and less than 5.0 indicates *minuta.* The ratio in the Negros specimen, 4.75, clearly places it with *minuta,* thus agreeing with the usable plumage characters.

As a result of this re-identification, there are no known specimens of *Calidris temminckii* from the Philippines. The species may be retained on the hypothetical list on the basis of a sight record from the vicinity of San José, Mindoro, 1 December 1970 (Temme 1976). According to Robert S. Kennedy, there is, in addition, at least one unpublished sight record from the Philippines.

It should be pointed out that the *''Tringa minuta''* recorded for ''Paragua'' (=Palawan) by Steere (1890) refers to *C. ruficollis* (Worcester & Bourns 1898). The only other published record for *C. minuta* in the Philippines is that of Mearns (1905), from Zamboanga, Mindanao; on the basis of this record the species was included by McGregor (1909), but unaccountably omitted by Delacour & Mayr (1946) and by duPont (1971). This specimen, United States National Museum of Natural History (USNM) No 191416, has been re-examined by several authorities, including Peter Colston, Peter Hayman, Edward Dickinson and Robert Kennedy. All tentatively agreed on its identification as *C. minuta.* Through the courtesy of Storrs L. Olson and J. F. Jacobs of the USNM, I was able to compare this specimen with the Negros *C. minuta.* It is slightly more olivaceous (less grey) dorsally, but otherwise the 2 specimens are virtually identical in colour and markings, including the pigmentation of the forehead and the dark brown lesser wing coverts. The wing/tarsus ratio (measured by Peter Colston) is 4.14, clearly in the range for *C. minuta.* I have no hesitation in identifying USNM 191416 as that species. In addition to the DM and USNM specimens, Edward Dickinson informs me that a specimen in the National Museum of the Philippines has also been identified as *C. minuta.* The Little Stint must therefore be considered as a rare winter vagrant to the Philippines.

A note on English names is in order. In some of the older literature, the name ''Little Stint'' was applied to *Calidris ruficollis.* In fact, many of the older Australian specimens in the AMNH collection bear this English name on their labels. Unfortunately this name was adopted by duPont (1971), but later (1976) he amended this to ''Eastern Little Stint''. *C. ruficollis* has also been called ''Asiatic Little Stint'' (McGregor 1909). To add to the confusion, Delacour & Mayr (1946), but few other authors, considered *minuta* and *ruficollis* conspecific, and therefore listed ''Little Stint *(Ereunetes minutus ruficollis)*'' as common in the Philippines. The word ''stint'' has never really caught hold in North America, and all the primarily Nearctic species are still called ''sandpiper''; but the most recent edition of the American Ornithologists' Union ''Check-list'' (1983) adopts ''stint'' for all of the primarily Palaearctic species, *C. ruficollis, minuta, temminckii,* and *subminuta.* There should now be universal agreement on the name "Rufous-necked Stint" for *C. ruficollis,* with "Little Stint" (unmodified) referring only to *C. minuta.*

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Books Received

Gooders, J. 1986. *The New Where to Watch Birds.* Pp. 224. Many maps. Hard covers. Andre Deutsch. £7.95

A newly written updated edition of the 1967 'Where to Watch Birds', a pleasantly written and informative introduction to the best bird-watching areas in England, Scotland and Wales, giving as before details of sites, habitat, species, seasons and access, arranged this time not in counties but on larger arbitrarily chosen regions, since "birders are even more mobile than they were and take little or no notice of county boundaries".

Salim Ali. 1986. *The Fall of a Sparrow.* Pp. 265. 71 photographs. Hard covers. Oxford University Press. £10.

The Indian subcontinent was fortunate to have in Salim Ali, the present doyen of Indian ornithology, now in its 88th active year, a man with an influential background who was able to develop his considerable talents and his initial passion for guns and shooting (and one that he has never lost) into those of an internationally renowned ornithologist and conservationist, as well as an author or co-author of several authoritative works on the sub-continent.

This autobiography, in a simple narrative style, is interspersed with amusing and interesting anecdotes about hmself and about other well known figures in the bird world, not always without very frank comments; but in the main the book is devoted to the author's own ornithological activities. The book unhappily, and surely misleadingly, provides a not always welcome insight into the author's outlook; there must be much more of interest in his influential life and his frequent contacts with so many eminent leading politicians, as well as ornithologists, of which we are given not even a glimpse, and this is disappointing.

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Papers, from Club Members or non-members, should be sent to the Editor, Dr J. F. Monk, The Glebe Cottage, Goring, Reading RG8 9AP, and are accepted on the understanding that they are offered solely to the *Bulletin.* They should be typed on one side of the paper, with double-spacing and a wide margin, and submitted with a *duplicate copy on airmail paper.* Scientific nomenclature and the style and lay-out of papers and of References should conform with usage in this or recent issues of the *Bulletin.* Informants of unpublished observations should be cited by initials and name only, e.g. ". . . catches wasps (B. Eater)", but "B.B.C. Gull informs me that . . .". Photographic illustrations, although welcome, can only be accepted if the contributor is willing to pay for their reproduction. Authors are requested to give their title, initials, name and full address (in the form they wish to be corresponded with) at the end of the paper.

An author wishing to introduce a new name or describe a new form should append *nom., gen., sp.* or *subsp. nov.,* as appropriate, and set out the supporting evidence under the headings "Description", "Distribution", "Type", "Measurements of Type" and "Material examined", plus any others needed.

A contributor is entitled to 10 free reprints of the pages of the *Bulletin* in which his contribution, if one page or more in length, appears. Additional reprints or reprints of contributions of less than one page may be ordered when the manuscript is submitted and will be charged for. Authors may be charged for proof corrections for which they are responsible.

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British Ornithologists' Club

Edited by

Dr J. F. MONK

Volume 106 No. 4 December 1986

FORTHCOMING MEETINGS

Tuesday, 20 January 1987 at 6.15 pm for 7 pm in the Senior Common Room, Sherfield Building, Imperial College, S.W.7, **Dr C. J. Feare** will speak on **"Man and the starling family"**. Those wishing to attend should send their acceptance with a cheque for £5.30 a person to reach the Hon. Secretary at 2 Chestnut Lane, Sevenoaks, Kent TN13 3AR by first post on 6 January, if possible*.

Dr Feare will discuss the relationship between starlings and man in different parts of the world. He needs little introduction and is the author of three articles in "A dictionary of birds" (1985), including "starling", and was joint convener of the symposium on "Birds as pests" at the XIX International Ornithological Congress earlier this year.

Tuesday, 10 March 1987 at 6.15 pm for 7 pm at the same venue, **Dr Carlo Violani** will speak on **"Current studies on the birds of Sardinia".** Those wishing to attend should send their acceptance with a cheque for £5.30 a person to reach the Hon. Secretary (address above) by first post on 24 February 1987, if possible.*

Dr Violani, of Milan and of Pavia University, is involved in a project for the reintroduction of the White-headed Duck *Oxyura leucocephala* **into Sardinia and will also include in his address descriptions of other projects being undertaken in Sardinia.**

Tuesday, 12 May 1987, at the same venue, **Professor Fred Cooke** will speak on **"Birds of the Arctic"** and include some of his studies of Ross's Gull *Rhodostethia rosea,* Red-necked Phalarope *Phalaropus lobatus,* Semipalmated Sandpiper *Calidris pusilla* and Willow Ptarmigan *Lagopus lagopus.*

*It will be possible to take acceptances up to the weekend before the Meeting, but Members are asked to accept by 14 days before the Meeting, if they possibly can, to avoid a substantial number of late acceptances, as we have to notify approximate numbers 14 days before a Meeting.

Many copies of the *Bulletin* must get thrown away annually by members, or their relatives, which the Club would welcome. Please send ALL unwanted copies, and ask your Executors to do the same, to the Hon. Treasurer at 53 Osterley Road, Isleworth, Middlesex TW7 4PW at any time. Postage will be refunded if requested.

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Bulletin of the
BRITISH ORNITHOLOGISTS' CLUB

Vol. 106 No. 4 Published: 19 December 1986

The seven hundred and sixty-seventh Meeting of the Club was held in the Senior Common Room, Sherfield Building, Imperial College, London S.W.7 on Tuesday, 23 September 1986, at 7 pm. The attendance was 33 members and 18 guests.

Members present were: G. K. McCULLOCH *(Chairman),* P. J. BELMAN, Dr W. R. P. BOURNE, Mrs D. BRADLEY, J. N. B. BROWN, D. R. CALDER, Cdr M. B. CASEMENT, R.N., R. D. CHANCELLOR, Dr R. A. F. COX, N. CROCKER, A. DAVIES, J. H. ELGOOD, Sir HUGH ELLIOTT, S. J. FARNSWORTH, D. GRIFFIN, K. W. HENSHALL, S. HOWE, R. H. KETTLE, Dr J. F. MONK, Dr P. MORRIS, P. J. OLIVER, R. C. PRICE, P. S. REDMAN, P. RUDGE, P. J. SELLAR, N. H. F. STONE, A. R. TANNER, K. V. THOMPSON, D. TUTT, A. TYE, M. WALTERS, E. J. WILLIAMS.

Guests present were: Mrs BALLARD, D. J. BRADLEY, P. BULL, Mrs CALDER, Mr D. COPPLESTONE, H. CRICK, D. COZENS, Mrs FARNSWORTH, Cdr C. FURZE, R.N., Sir ANTHONY LAMBERT, Mrs McCULLOCH, Miss K. A. MOSELEY, Mrs OLIVER, M. PANKHURST, B. PERRY, Mrs PRICE, Mrs TYE, P. W. WILKINSON.

Dr W. R. P. Bourne gave an illustrated talk on ''Birds of subantarctic Islands'' and he has supplied the summary which follows.

Birds of subantarctic islands

All the most isolated islands in the North Atlantic have suffered at least half a millenium of human interference, and it has long been taken for granted that they should appear bare, with wildlife surviving only in holes and corners and on cliffs and rocks offshore. During the remarkable summer of 1940, when I was ten, I was sent to the prototype of Prospero's island in ''The Tempest'', Bermuda, just before an introduced defoliating insect destroyed the native woodland, and there observed that in their natural state islands are not necessarily barren, but that their natural environment is easily destroyed (see *Ibis* 99: 94–105). While at Cambridge I visited Rhum in the Hebrides, and there found that while the island had long been devastated there were still many shearwaters breeding unnoticed in the hills (*Scot. Nat.* 69: 21–31), which led me to take a wider interest in both conditions on islands and the effect on their birds, and especially their most distinctive species, the petrels. After I had examined a variety of islands this led to the formulation of a shopping list for lost petrels, discussed in a previous talk 21 years ago (*Bull. Brit. Orn. Cl.* 85: 97–105), most of which have now been rediscovered in desperate straits which also affect a variety of other specialised insular birds.

Initially I visited a number of outlying western Palaearctic sites of the type already described by Frank Darling, Robert Atkinson, David Lack and especially Ronald Lockley, from the Cape Verde Islands (*Ibis* 97: 508–556), via Cyprus (*Proc. Int. Orn. Congr.* 12: 127–132), to Bear Island, but found them all so altered by centuries of human activity that their natural state remains debatable. In 1974 I toured some comparable southern islands around New Zealand and in the Chatham Islands, where the natural evergreen broad-leaved woodland and associated land and seabird polpulations have only recently come under attack, with inspiring attempts now being made to preserve them (*New Scientist* 67: 422–425). Since then I have also seen a representative range of other southern islands, including the prototype of Robinson Crusoe's island, the Juan Fernandez group on the other side of the South Pacific, which is most remarkable for its botany but also has an important avifauna and is now also being conserved (*Ibis* 125: 595); and in the South Atlantic, Ascension, Gough Island, the Falklands and South Georgia, which are unfortunately still suffering from chronic neglect (*B.T.O. News* 109: 4, 130: 6; *Sea Swallow* 34: 18–38 and 35 *in press; Ann. Rep. I.C.B.P. (Brit. Sect.)* 1985: 6–8).

It appears from this odyssey that the fashionable view largely due to R. H. MacArthur & E. O. Wilson's *Theory of Island Biogeography* (Princeton University Press, 1967), that insular natural communities are controlled by physical factors leading to a rapid turnover of species, fails to allow adequately for the impact of human activity upon previously stable highly specialised insular ecosystems. This has recently been shown by S. L. Olson & H. F. James (*Science* 217: 633–635) for Hawaii, where apparently, as in New Zealand, the Polynesians were already responsible for the loss of many of the most interesting bird species long before the arrival of Europeans. Thus originally most oceanic islands must have had much more complex communities of endemic insular plants and animals than now survive, amongst which birds played a particularly important role both as a source of fertility derived from the sea, and as the main terrestrial vertebrates. It is time that the pathetically few surviving relatively unspoilt examples, some of the best of which still remain under British administration, received much more study and conservation.

766th Meeting

At the 766th Meeting of the Club, held on 22 July 1986, (*Bull. Br. Orn. Cl.* 106: 89) Dr Alan Tye spoke on "Birds in Sierra Leone". He described the main types of habitat and discussed the bird species which inhabited them, showing slides of many of them. He explained the serious threat to forest species, because of loss of habitat.

Birds on Moheli and Grande Comore (Comoro Islands) in February 1975

by A. S. Cheke & A. W. Diamond

Received 8 January 1986

These observations were made in February 1975 as a preliminary to a further visit to investigate certain anomalies in the avifauna left unresolved by the BOU centenary expedition of 1958 (Benson 1960); in the event it was not possible to arrange the fuller study. Our observations (not written up at the time in expectation of the more detailed work to come) complement recent detailed studies in the islands by the Musée Royale de l'Afrique Centrale in Tervuren (Louette 1984b), and give some information for the interval between the previous reports (Benson 1960, Forbes-Watson 1969, Salvan 1972) and the recent work. The Comores have suffered severe deforestation since Benson's visit (Anon. 1979, Cheke & Dahl 1981: 230, Baudon 1983: 19). Moheli, the most forested but least populated island, has been the least affected, although for this reason it has been ominously suggested that people from the overcrowded island of Anjouan be resettled there (Baudon 1983: 17).

Between 14 and 27 February we spent a total of 9 ornithological man-days on Moheli (ASC & AWD) and 2 on Grande Comore (AWD), with a few other scattered observations. We were unable to be on the islands together as planned, but a night's overlap enabled ASC to brief AWD on observations to follow up on Moheli.

Benson (1960) reported 2 sympatric species of *Hypsipetes* bulbuls and *Nesillas* warblers on Moheli, an unexpected situation we wanted to compare with our studies on related forms in the Mascarenes (ASC) and the Seychelles (AWD) (Cheke 1987a, b, Diamond 1980). Moheli was the only Indian Ocean island with congeneric bulbul and warbler pairs: and it was not known how they partitioned the habitat. At that time the Malagasy warbler genus *Nesillas* was generally considered congeneric with the Seychelles/Mascarene genus *Bebrornis* (e.g. Benson 1960, Mayr 1971; see Diamond 1980) which we had studied in detail. Serious doubt had been cast on this affinity by A. D. Forbes-Watson and we wanted to see it for ourselves.

Subsequent to his published report, A. D. Forbes-Watson saw an unidentified warbler on Grande Comore which he thought might be *Nesillas mariae* (the Moheli endemic) or an undescribed species. Benson (1960) had reported a marked plumage polymorphism in the *Hypsipetes* bulbuls there – unique for an Indian Ocean island with *Hypsipetes* species.

On this short visit we were not in a position to resolve these questions, and this report is largely of general observations on the avifauna, but the warblers and the bulbuls are treated more fully; Louette & Herremans (1985b) have recently tackled the bulbuls in detail. No other ornithologists have visited the islands in February (in the middle of the rains), so our breeding records add to what little is known of seasonality in the Comores. ASC collected local names at Miringoni on Moheli, several of which were 'new'; the word for 'bird' was *nyuni.* A note on the former occurrence (previously overlooked) of the green pigeon *Treron australis* on Anjouan and Grande Comore is added as an appendix.

SYSTEMATIC LIST OF OBSERVATIONS

Fieldwork on Moheli was done principally in the lower part of the hills inland of the airstrip at Bandaressalam (near Fomboni), and on the southwest of the island between the coast at Miringoni and the crest of the island's central spine at the Chalet de St-Antoine (697 m). On Grande Comore the forest at Nioumbadjou was the focus of activity. Place names are as given on the IGN 1: 50,000 contoured maps 'Moheli' and 'Grande Comore' (2 sheets) (undated, c. 1958); M = Moheli, GC = Grande Comore. Local names are given in square brackets after the scientific name: ** indicates a previously unrecorded name (see Benson 1962), * a name not previously known on Moheli, § a name apparently known only to one informant, and (v) a variant of, but not identical to, a previously known name; other comments are also in ( ) brackets. In the transliteration *'ch'* is hard (as in 'cheese'), *'u'* is short like 'oo' in 'cook' while *'oo'* is long as in 'cool'.

The annotated list only includes significant records; other species seen are summarised at the end.

AUDUBON'S SHEARWATER *Puffinus lherminieri*

M. One heard at night at St-Antoine, 23 Feb. Not previously recorded from the Comores, and since described as a new race, *P.l. temptator* by Louette & Herremans (1985a) from a specimen taken at the same locality.

LESSER FRIGATE BIRD *Fregata ariel* [*na'ande* (v)]

M. Up to 100 frigates gathered over the coast near Miringoni some evenings, and up to 8 were seen at Bandaressalam. No adults were seen, but some older immatures were beginning to show the white flank patches characteristic of *F. ariel.* Benson (1960) saw unidentified frigates, but Forbes-Watson (1969), who only saw 2 birds, confirmed this species on Moheli. In 1983 Draulans *et al.* (1985) found a roost of several hundred frigates, mostly *F. ariel,* on Magnougni islet, south of Moheli.

GREAT EGRET *Egretta alba*

M. One on the shore at Miringoni, 17 Feb. A rare resident in the Comores recorded nesting only on Moheli, in very small numbers (Benson 1960, Forbes-Watson 1969).

DIMORPHIC EGRET *E. gularis* [*mgweda*** (? this species)]

M. One (white phase) on the shore at Bandaressalam, 15 Feb. Also there, 2 white egrets, either this species or Cattle Egrets *Ardeola ibis,* in a distant tree. The only previous confirmed record for the islands was also on Moheli (Forbes-Watson 1969), namely *E. garzetta.*

MALAGASY HARRIER *Circus maillardi macrosceles* [*boondi-bwakanggi*** (however *bwankanga* = *Accipiter* on GC – Benson 1962)]

M. Seen briefly twice over plantations at Miringoni; seen at Hoani, and another seen above Bandaressalam, 19 Feb, both over secondary forest. A pair hunting over slash & burn clearances above Hamba, 19 Feb. Resident, more frequent on Moheli than the other islands (Benson 1960, Forbes-Watson 1969).

MADAGASCAR GOSHAWK *Accipiter francesii* [*chipangga***]

M. Not seen by us. R. Legrand reported finding a nest near St-Antoine. There are no formal records of this species from Moheli.

MOORHEN *Gallinula chloropus*

M. R. Legrand reported them from the lake of Dziani Boundouni at the east end of the island, and had once seen one at the river mouth at Miringoni. Not seen by us, and not formally recorded for Moheli.

CRESTED TERN *Sterna bergii* [*nyamande*]

M. Three on Miringoni beach 19 Feb. and 2 at Bandaressalam, 20 Feb. The only previous Moheli record is Benson's (1960), but the species has since been recorded by Draulans *et al.* (1985). **GC.** A flock of 50+ birds noted as ''seagulls'' from the air while leaving Moroni airfield, 15 Feb, may have been these large terns; a few more ''gulls'' were seen over the sea during the flight to Moheli together with unidentified larger dark seabirds (possibly Brown Boobies *Sula leucogaster).*

MADAGASCAR TURTLE DOVE *Streptopelia picturata comorensis* [*poodji; culicul***§]

M. This red-headed form was common at Bandaressalam and up to the lower limit of native forest (c. 350 m) at Miringoni; this suggests a preference for exotic rather than native forest, a distinction not noted by Benson (1960) or Forbes-Watson (1969).

AFRICAN GREEN PIGEON *Treron australis griveaudi* [*verinadabu** (cf. Fischer 1949 for GC/Anjouan)]

M. Only seen at Miringoni in secondary forest or coconut plantations mixed with mangos and other trees at c. 75-150 m alt:– 1 in secondary forest, 17 Feb; 1 feeding on ground with 3 Madagascar Turtle Doves under coconuts *Cocos nucifera,* and another singing nearby in a mango *Mangifera indica,* 18 Feb. The song was noted as ''wheeoo rnk rnk (mynah-like whistle followed by frog-like grunts)''. This race was included in the *Red Data Book* (King 1978-79), presumably on grounds of restricted range. Cheke (1980), Collar & Stuart (1985) regarded it as ''common'' in 1975. This was perhaps rather overstating the case; but the ease with which it was seen does not suggest rarity, and indeed Benson (1960) thought it probably not uncommon (his expedition collected 4). (*Treron* spp. are notoriously hard to see in foliage). This form, like other forest birds on Moheli, would be threatened by any serious inroads on the hill forests.

COMORO BLUE PIGEON *Alectroenas sganzini* [*nyingga; mo'ya** (recorded for 'pigeon ramier' (? = *arquatrix*) by Fischer 1949)]

M. One at c. 400 m in native forest above Miringoni, 18 Feb; 1 in secondary forest dominated by *Pterocarpus* at c. 300 m above Hoani, 19 Feb; 2 in secondary forest at c. 150 m behind Bandaressalam, 20 Feb. 3 of these observations were of birds briefly glimpsed flashing through the forest, and suggest that the species was common but difficult to see. Benson (1960) implied that it was largely confined to native forest.

VASA *Coracopsis vasa* [*kwendzu, go'endzu, kuintzu*]

M. Frequently seen from lowland coconut plantations at Miringoni up to the native ridge forest at St-Antoine. As it was clearly given to long flights after food it was difficult to assess real abundance. One of 2 birds seen closely near St-Antoine on 17 Feb was in body and tail moult. Very vocal; more often heard than seen in forest. The distribution seemed unchanged since 1958 (Benson 1960).

GREY-HEADED LOVEBIRD *Agapornis cana* [*karrarrowki*]

M. Seen regularly in secondary vegetation at Bandaressalam and Miringoni, and on the path from Miringoni to Hoani (the coast road was impassible in the rains). A pair using a hole in a dead tree above Hamba appeared from their behaviour to have eggs, 19 Feb. Behind Bandaressalam on the same day 2 birds feeding on the ground were eating unopened flowering shoots of grasses, *Stenotaphrum micranthum* (identified by the Mauritius Herbarium) and another species. Benson (1960) only saw this species on Moheli near Fomboni, and Forbes-Watson (1969) not at all..

BLACK SWIFT *Apus barbatus*

M. 50+ over Miringoni, 17 Feb. The only previous record for Moheli is Forbes-Watson's (1969).

BLUE-CHEEKED BEE-EATER *Merops superciliosus* [*diwindiwi*** (cf. Palm Swift)]

M. A few at Hoani and Hamba, 16 Feb. A juvenile above Miringoni on 18 Feb brought a large (c. 40 mm) cicada to a perch and had great difficulty in reducing it sufficiently (by beating it on a branch) to swallow it. The age of this bird confirms Benson's (1960) breeding dates (eggs laid in late Oct or early Nov, Mayotte). Ten birds seen over Bandaressalam on 22 Feb were in early-mid wing moult.

CUCKOO-ROLLER *Leptosomus discolor* [*kwe'u-kwe'u*]

M. A pair seen at a distance over mid-altitude native forest above Miringoni, 18 Feb. There is some confusion amongst locals between this species and the Vasa; the local name is much closer to one of the Vasa's calls ("kweo kweo") than to the drawn-out "ki-ooo" of the Cuckoo-roller, and ASC found *kwe'u-kwe'u* used for the Vasa as well as *kwendzu* and variants. Benson (1960) recorded a decline on Anjouan since the turn of the century, and our solitary record suggests a recent decline also on Moheli.

MADAGASCAR CUCKOO-SHRIKE *Coracina cinerea*

M. Only seen in native forest near St-Antoine at c. 600 m, where a pair was seen on 17 Feb, a family party (a pair and 2 juveniles) on 18 Feb and more birds on 24 Feb. The party was gleaning on leaf-bases and leaves within reach of their perches; one young was seen to jump-snatch at a flying insect. The song-call was noted as *wheeoowee whi whi wheeoowee;* they also gave an occasional short *whic,* a fluty *tiooi,* a rasping chatter, and a subsong (given by an immature or first year bird) a "very quiet reflective chattering warble". Benson (1960) found it uncommon on Moheli, and Forbes-Watson (1969) failed to see any.

Benson (1960) described the birds on Moheli as a new race, *moheliensis,* but only had one female in his series, a bird with uniformly pale underparts. In each of the 2 pairs seen by ASC, both birds had dark grey heads and throats, as described by Benson for 2 of his males, while the 2 presumed immatures on 18 Feb had white throats and paler grey crowns (like Benson's female; his other 2 males were intermediate). One of these presumed young, being fed by an 'adult' (i.e. a grey-throated bird), showed some scaly feathers on the back and slight dark spotting on the side of the breast reminiscent of the immature plumage of Mascarene birds *(C. typica, C. newtoni,* pers. obs.). The inference is that all pale-throated birds are immatures, and that they need 2 seasons to reach full plumage: Benson's white-throated birds, the 2 males beginning to acquire dark throat feathers, were collected in September and had fully ossified skulls.

The calls are unlike those of the two Mascarene species (Horne 1987, pers. obs.), and emphasize, as Benson (1971) suggested, that the Malagasy and Mascarene forms are not closely related.

MERLES or BLACK BULBULS, alternative names for all *Hypsipetes* spp [*tsorbe* (v)]

M. Neither of us was readily able to distinguish the 2 forms in the field; plumages appeared to intergrade, but we did distinguish abundant short-billied muddy-grey birds with yellow to yellow-brown legs and feet (very dark in juveniles) from longer-billed more olive birds with flesh or horn-coloured legs and feet. Both had yellow to orange beaks and dark irises, and were moulting. Four of the olive type trapped at around 400 m above Miringoni proved to be Benson's (1960) *H. crassirostris moheliensis,* until then known from a single specimen collected in 1958 (Table 1). Juveniles had "orange-brown" primaries (cf. the query in Louette & Herremans's 1985b: 411–2). One of the trapped birds proved to be infected with trypanosomes and a *Haemoproteus* (Peirce & Cheke 1977). This form was quite common in the upland forest.

TABLE 1

Measurements of *Hypsipetes crassirostris moheliensis*

Date	Ring No. (Paris)	Age	Wing (mm)	Tail	Bill (skull)	Weight (g)	Moult score (Newton '66)	Caught by
18 Feb	GA 90671	Juvenile	109	–	–	65	10	ASC
18 Feb	GA 90672	,,	115	–	–	61	26	ASC
18 Feb	GA 90673	Adult	125	–	–	68	86	ASC
24 Feb	–	,,	(112.5)	(101)	29.5	58	80	AWD

Note: Bracketed measurements indicate incomplete growth.

The other form was thus Benson's *H. madagascariensis parvirostris,* and appeared to be confined to the lowlands. Merles were present at all altitudes. Louette's team's (Louette 1984b, Louette & Herremans 1985b) study has interpreted the species differently from Benson. The upland olive forms on both Moheli and Grande Comore are treated as 2 races of a new species *H. parvirostris* (the 19th century type is an olive bird from GC), and the lowland grey forms as *H.m. madagascariensis.* The large Moheli form thus becomes *H. parvirostris moheliensis.*

The lowland form was seen eating a large ant, and to extract a ?beetle from the base of a palm frond *(Phoenix* sp.); on 19 Feb a family group (2 ads. + 1 juv.) behind Bandaressalam were flycatching from trees.

GC. Merles with dark grey upperparts, pale to mid-grey underparts with "dull" coloured legs, not moulting, were seen at Hahaya and Boboni on 21 Feb. These were Benson's grey morph of *H. madagascariensis parvirostris,* i.e. *H.m. madagascariensis* of Louette & Herremans (1985b).

BLUE VANGA *Cyanolanius madagascarinus*

M. Only seen in the native forest above 500 m towards St-Antoine: a pair, and two singles, one giving a "coarse frog-like rattle", on 18 Feb. Formerly known in the Comores only from upland forest on Moheli, this species has recently been recorded on Grande Comore (Louette & Herremans 1982).

COMORO THRUSH *Turdus bewsheri* [*lulu***, *marrta*** (cf. Common Mynah)]

M. More common at Miringoni, where it extended into the plantations, than at Bandaressalam where it was seen only once, in secondary forest. At Miringoni/St-Antoine, birds were seen throughout the forest to the summit ridge. Some were caught and measured on 18 Feb. in native forest at c. 400 m (the juveniles were in spotty plumage typical of fledgling thrushes) (Table 2).

TABLE 2

Measurements of *Turdus bewsheri*

Ring No. (Paris)	Age	Wing (mm)	Weight (g)	Moult score (Newton 1966)	Caught by
GA 90670	Adult	105	65	36	ASC
GA 90674	Juv.	104	61	no moult	,,
GA 90675	Adult	117	68	32	,,
GA 90676	Juv.	109	59	no moult	,,
GA 90677	Adult	(102)	57	18	,,

Note: Adult No. 77 had very abraded wings; the juveniles appeared very recently fledged. One of the trapped birds was shown to be infected with microfilaria (Peirce & Cheke 1977).

This thrush is very long-legged, solitary and lives on the forest floor, in some ways recalling a *Pitta.* Call notes were a sharp *tchwit* and a merle-like whistle. Two old thrush-like nests, presumed to be of this species, were found near the trapping site 2 m up in a dead sapling and 4.5 m up a small tree on a branch rising at 45°. One bird was seen using clumsy acrobatics to reach the 7.5-15 cm long umbrella-shaped hanging fruit of an unidentified tree.

Benson (1960) reported thrushes as confined to forest, but Forbes-Watson (1969) saw one in an ylang-ylang plantation on Anjouan, and we found them in this and coconut plantations at Miringoni.

BRUSH WARBLERS *Nesillas* spp. [*lulu***§ (cf. Comoro Thrush)]

M. Separation of the 2 *Nesillas* warblers proved easier than the merles. Benson (1960) did not realise that he had 2 species until he studied his collections and found he had specimens from Moheli of *N. typica* and also a smaller form which he described as *N. mariae.* At high levels (>400 m) in native forest behind Miringoni we found a common large greyish-brown semi-terrestrial warbler, while lower down (c. 150 m), and behind Bandaressalam at similar altitude, were smaller, greener, highly arboreal warblers in secondary vegetation. One of the former was trapped by AWD and shown to be *N.t. moheliensis:* wing 68, tail 82 (outer feathers 38), bill 16 (to skull), tarsus 26 mm, weight 24.25 g. This form has a relatively long tail and legs and short wings; Louette (1984b) gave the tarsi as averaging 26 mm for *typica* and 22 m for *mariae,* figures not given by Benson (1960). One was feeding a fledged but still short-tailed young at St-Antoine on 23 Feb.

It did not prove possible to trap the other form, the endemic *N. mariae,* but they were easily separable by the above characteristics and also by voice, and by their visibly shorter tails in conformity with Benson's original description. A pair was seen in the canopy of 4.5 m scrub by a stream at c. 150 m behind

Miringoni on 18 Feb, and 2 pairs, one at a nest, were watched in a clump of mangos *Mangifera indica* at about the same altitude on 20 & 26 Feb behind Bandaressalam; a group of 4 more were seen a little further up on the 20 Feb. The nest, under construction on 20 Feb, was 9 m up in a mango c. 15-20 m tall. It was on the end of a long horizontal branch, in foliage, and was a small cup constructed of moss and grass with an untidy dangle of bits of grass hanging under it. The nest was nearly complete and the birds were actively perfecting the cup, but were also seen adding a dead leaf, grass, and a tiny twig to the structure. They remained mostly in the canopy, though one bird came down to c. 1.25 m off the ground seeking nest material. They fed by leaf-gleaning.

Vocally the 2 forms were quite distinct. The upland *typica* had a "sharp broken staccato chatter – ***kikakitikak*** etc." with an insect-like quality, while the song was "a mixture of chattering and brief warbles". *N. mariae* had much squeakier calls, though of a similar staccato character: *chit-chat-chik,* written also as a "very squeaky sparrow chatter". The song was "a muddled staccato warble" with phrases reminiscent of *Terpsiphone bourbonnensis* subsong (see Horne 1987) or a "thick squeaky warble" (a different bird).

While the 2 taxa are close to each other, neither bears any resemblance in behaviour or voice to *Bebrornis,* and using these observations Diamond (1980) united *Bebrornis* with *Acrocephalus,* emphasising the distance from *Nesillas.* Furthermore the construction of the nest is different, and comparison of eggs in the Cambridge Zoology Museum shows that *N. typica* and *A. rodericanus* are very dissimilar in pattern (Cheke 1987c).

GC. A bird similar to the Moheli *typica* in behaviour and voice, but with a much shorter tail (i.e. Benson's *N.t. brevicaudata)* was seen at Boboni on 21 Feb. However a totally different bird (Diamond 1985), strongly resembling an *Acrocephalus/Bebrornis* was seen by AWD low down in wild raspberries amongst bananas in degraded forest which was being actively logged above Nioumbadjou on 27 Feb. It was "small, short-tailed, olive-grey, paler below with . . . eye-stripe". It called very like a *'Bebrornis'* but not often, responded to squeaking (as did *N. mariae*), but proved impossible to net. It did not resemble any of the possible migrant Acrocephaline or Hippolaid warblers known to AWD, and should be looked for by future visitors.

MADAGASCAR PARADISE FLYCATCHER *Terpsiphone mutata* [*ndjuru-djuru/mdzuru-dzuru***, *se'elbon****]

M. The race on Moheli, *T.m. voelzkowiana,* is the least flamboyant of the Comoro races, and lacks a white male morph. The birds were common in all kinds of shrubby or forest vegetation from the coast to the ridge at St-Antoine, as Benson (1960) also found. Two adults (2016571♂/72♀) were trapped in native forest at c. 400 m behind Miringoni on 18 Feb: wings 72, 71 mm, weights 13.0, 12.1 g, moult-score (Newton 1966) 30, 0, respectively.

The song was transcribed as *tvisi hwi-hwen hwi-hwen hwi-hwen,* of similar quality to, but simpler than, the song of *Terpsiphone bourbonnensis* (pers. obs., Horne 1987), whose general 'jizz' it also resembles more closely than other paradise flycatchers (pers. obs. in Asia, Africa & the Seychelles; Cheke 1987a), although Benson (1971) was unsure of the relationship.

Flycatchers were seen feeding flying young on 3 occasions (17 & 22 Feb, Miringoni & Bandaressalam, all at low elevations), one of the adults involved having moulted or lost its entire tail.

GREEN SUNBIRD *Nectarinia notata* [*zuli sandrovi*** ("[bird which] makes the bananas born")]

M. Widely but rather thinly distributed in forest at all altitudes, most frequent around 400-500 m above Miringoni. A female accompanied by a juvenile was seen on 18 Feb. One was seen probing banana *Musa sapientum* flowers for nectar at Bandaressalam – cf. the local name, and comments in Benson (1960) and Forbes-Watson (1969). A female with a brood patch was trapped by AWD at St-Antoine on 24 Feb: wing 71 mm, tail 40 mm, bill (to feathers) 34 mm, weight 20.0 g, no moult.

HUMBLOT'S SUNBIRD *N. humbloti* [*verrea***§]

M. Found over the same range as the Green Sunbird (as noted by Benson 1960), but seen a little less often in forest, it also occurred in scrub and gardens at Bandaressalam/Fomboni. A pair was seen carrying food behind Bandaressalam on 16 Feb. Insect feeding by gleaning and hover-gleaning on coconut leaf-tips, and nectar feeding on a common *Impatiens* was noted at Bandaressalam. **GC.** Seen in scrub near Hahaya airport, 21 Feb.

MADAGASCAR WHITE-EYE *Zosterops maderaspatana* [*nyandrengwa/nyandrenka***]

M. Rather frequent in pairs or small parties at low altitude in scrubby and forest vegetation, and seen up to c. 500 m behind Miringoni. A bird was flushed from a nest 2.5 m off the ground on a downward hanging branch of a *Macaranga* sp. at c. 400 m, Miringoni, 17 Feb; it could not be reached but small young were heard in it. White-eyes were seen gleaning insects in foliage on trees and on undergrowth, and eating over-ripe figs *Ficus* sp. This species has a very wide range of call-notes, and a *Serinus*-like song.

CARDINAL (MADAGASCAR FODY) *Foudia madagascariensis* [*mbera moro* (red *mbera*)]

M. Common, in places abundant, in secondary vegetation up to c. 100 m; at Miringoni only seen in the ylang-ylang (*Canangium*) plantations. Territorial density behind Bandaressalam was high, c. 2.5 per ha; in addition to territory-holding birds in red plumage, there were feeding flocks largely of brown birds, occasionally mixed with *Lonchura cucullata.* **GC.** Seen in scrub near Hahaya airport, 21 Feb.

COMORO FODY *F. eminentissima*

M. Regularly if thinly distributed through secondary forest and coconut plantations, and seen up to 600 m in native forest below St-Antoine. All birds seen were in eclipse, including one singing at Bandaressalam, 19 Feb, and at least 4 were noted to be in tail moult. This confirms Benson's (1960) observations of an earlier breeding season than for the Cardinal, though he doubted whether *F. eminentissima* had an eclipse plumage. Non-breeding plumage has since been recorded on Aldabra (Frith 1976) and is confirmed here for the Comores. An adult was seen feeding a fledged young in a large *Ficus* at Miringoni on 17 Feb; the parent was gleaning insects from leaf-bases. Other birds were seen "poking about in ripe figs and rotten branch stumps". One was seen to place an inflorescence of an unidentified mimosoid tree under its foot on a branch, and then remove each floret and mandibulate it to extract nectar, as described by Melville (1979) for the Cardinal.

HOUSE SPARROW *Passer domesticus* [*mbera* (cf. Cardinal)]

M. Common at Bandaressalam and Fomboni; not seen at Miringoni. This suggests a decline since 1958, as Benson (1960) recorded it in "practically every human settlement" on Moheli. Benson (1962) recorded *nyuni* as the name for House Sparrows on Moheli – this was the word ASC was given for 'bird'. GC. Seen in Moroni.

COMMON MYNAH *Acridotheres tristis* [*marrta*** (presumably from the French 'martin'; cf. Comoro Thrush)]

M. Common in lowland areas, not seen above 300 m at Miringoni. One was seen with a party of fledged young at Bandaressalam on 15 Feb. **GC.** Recorded near Hahaya airport, 21 Feb.

The following common resident or regular migrant birds were also seen, or local names were recorded for them. (R): resident, (M): migrant. B: Bandaressalam, F: Fomboni, H: Hoani, Ha: Hamba, Mi: Miringoni.

HERONS (in general) [*gongomoro***].

LITTLE GREEN HERON *Butorides striatus.* (R) **M.** Singles on shore: Mi, B.

GREY HERON *Ardea cinerea.* (R) **M.** 1 on the shore: B.

BLACK KITE *Milvus migrans* [*koz**, *kozi**, *boondi**]. (R) **M.** Rather few: Mi, B, H. GC. absent Moroni to Hahaya.

HELMETED GUINEA FOWL *Numida meleagris* [*kangga*] (domestic only).

WADER sp. [*tsurruru*** (? ex Mascarene Creole 'trululu' for a species of beach-dwelling crab)].

RINGED PLOVER *Charadrius hiaticula.* (M) **M.** 2 on shore B.

GREY PLOVER *C. squatarola* [*chidankaha*** (? this sp.)]. (M) **M.** 1-2 on shore: Mi, B.

WHIMBREL *Numenius phaeopus* [*ninimbwa***]. (M) **M.** 1-2 on shore: Mi, B.

COMMON SANDPIPER *Tringa hypoleucos.* (M) **M.** 1 by lowland stream, Mi.

GREENSHANK *T. nebularia.* (M) **M.** 1 on rocky shore: B.

OLIVE PIGEON *Columba arquatrix* [*nyakangga* (v)]. (R) **M.** only 1, above B.

FERAL PIGEON *C. livia* [*ndiwa** (cf. Fischer 1949 for GC/Anjouan)]. (R) **M.** Not recorded, possibly an oversight in note-taking.

RING-NECKED DOVE *Streptopelia capicola* [*chicoro**]. (R) **M.** Noted at B, H. GC. Hahaya.

TAMBOURINE DOVE *Turtur tympanistria* [*chi-du-du**]. (R) **M.** Only recorded at B.

BARN OWL *Tyto alba* [*bundokudjo***]. (R) **M.** An owl, presumably this species, heard at Mi, where said by R. Legrand to be common.

PALM SWIFT *Cypsiurus parvus* [*chiriviriviri*** (that which passes & re-passes), *diwindiwi***§]. (R) **M.** Frequent at B, H & Mi. GC. Moroni.

MALAGASY KINGFISHER *Alcedo (cristata) vintsioides* [*nyunimbro*** (bird of the river)]. (R) **M.** Not seen.

YELLOW WHITE-EYE *Zosterops senegalensis.* (R) GC. scrub near Hahaya airport.

BRONZE MANNIKIN *Lonchura cucullata* [*nyachendje**]. (R) **M.** in open areas: Mi, H, B.

PIED CROW *Corvus albus* [*gowa** (v)]. (R) **M.** few; B, F, H, Mi. GC. near Hahaya airport.

Acknowledgements: In early 1975 Moheli was almost without facilities for visitors – one shop (in Fomboni), few passable roads, no public transport and one tiny run-down guest-house by the airstrip. We are thus enormously indebted to Rene Legrand of Miringoni who offered us excellent hospitality (both at his home and at the Chalet de St-Antoine), and his wealth of local knowledge. We also thank Robert Antoine, then Director of the Mauritius Sugar Industry Research Institute, for putting us in touch with M Larcher of IRAT on Grande Comore, who was able to help AWD with transport, and M Latrille (also (IRAT) on Moheli who helped with maps and transport. AWD also thanks Liz Diamond for help and companionship in the field.

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APPENDIX

The former occurrence of African Green Pigeons on Anjouan and Grande Comore

The first formal record of green pigeons in the Comores was 4 collected on Moheli in 1958 by Griveaud and described by Benson (1960) as a new race, *griveaudi,* of *Treron australis.* At the same time Benson claimed that there was ''no evidence of its occurrence on the other three islands''. There are in fact quite strong indications of past presence of the species at least on Anjouan and probably also Grande Comore.

Bewsher (*in* Newton 1877), a conscientious observer and collector, listed birds he saw on Anjouan but did not collect, including a ''green and brown pigeon''. Gevrey (1870) included ''pigeon vert'' as ''TC'' (=*très commun*) in his list of the Comorian fauna. His list is far from complete, but there is no sign that Gevrey had any significant information from Moheli, nor would he have described as very common a bird confined to the forests of only one island. Finally

Fischer (1949) glosses *'verinadabu'*, the same name I collected in Moheli, as ''pigeon vert''; he explicitly says his work was based on the language of educated Grand Comorians with additions from Anjouan. Thus as late as the 1940s a word for green pigeon was current on Grande Comore and/or Anjouan, so the birds possibly survived until relatively recently. However neither Griveaud (in litt. 1975) nor Legrand's Anjouan contacts (in litt. 1976) had heard tell of green pigeons there. Anjouan is a densely populated island with little surviving forest, but the birds could have escaped notice more easily on the larger and less deforested Grande Comore, where they should be looked for.

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The correct specific name for the Akepa of Oahu (Drepanidini, *Loxops*)

by Storrs L. Olson

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The 4 insular populations of the Hawaiian finch (Drepanidini) known in some quarters under the native name ''Akepa,'' are now generally regarded as subspecies of *Loxops coccinea* (Gmelin) [*Loxops coccineus* if one regards ''*-ops*'' as masculine, following the unfortunate imposition of Art. 30a(ii) (ICZN, 1985)]. These 4 constitute *Loxops* in the strict sense, the type of the genus being the *Fringilla coccinea* of Gmelin (1788). Whether more than one species is included in this group of 4 is still the subject of investigation, but each discrete population (Hawaii, Maui, Oahu and Kauai) differs in plumage from the others and is recognisably distinct at least at the subspecific level.

The form from Oahu was first collected by Andrew Bloxam in 1825, who described it under the name *Fringilla rufa* (Bloxam 1827). Rothschild (1893), in the erroneous belief that all previously taken specimens of *Loxops (sensu stricto)* had come from Hawaii and were referable to *L. coccinea,* described a specimen in his own collection, the last to be taken on Oahu, as *Loxops wolstenholmei.* He later found (Rothschild 1895) that Bloxam's specimens, which I have also examined, agreed in plumage with the Oahu form. Therefore, he resurrected Bloxam's name *rufa* and placed *wolstenholmei* in synonymy. The name *Loxops rufa,* or *Loxops coccinea rufa,* has been in all but universal use for the Oahu bird ever since. I have examined microfilms of Bloxam's field notes and other records in the British Museum (Natural History) which indicate that all the specimens of birds he obtained in the Hawaiian islands, save for one of *Chasiempis sandwichensis,* came from Oahu, thus further confirming what Rothschild had established on the basis of plumage.

As it turns out, however, Rothschild's name must be employed after all, because *Fringilla rufa* Bloxam, 1827, is a junior homonym of *Fringilla rufa* Wilson, 1811, which, as established by Bonaparte (1824), is a synonym of *Fringilla iliaca* Merrem 1786, the Fox Sparrow of North America. Stejneger (1900) called attention to the preoccupation of *Fringilla rufa* Bloxam some 85 years ago, but his remarks have been entirely overlooked. Because Bloxam's name is clearly unavailable for the species in question, the Akepa of Oahu must be known under the next available name: *Loxops wolstenholmei* Rothschild, 1893.

Acknowledgements: I am most grateful to the staff of the British Museum (Natural History), Tring, for access to Andrew Bloxam's specimens and notes.

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Notes on Philippine Birds, 10. On the validity of *Gerygone sulphurea rhizophorae* Mearns

by Kenneth C. Parkes

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Few authors have discussed the taxonomic status of the Yellow-breasted Wren-warbler (or Flyeater) *Gerygone sulphurea* in the Philippines. In his monograph of the genus *Gerygone,* Meise (1931) included the Philippine populations in a comprehensive species *G. fusca.* Mayr (1944) showed that subdivision of *fusca* into 4 species was a preferable treatment, with the Philippine populations considered to be conspecific with *G. sulphurea* (Type locality Solor, Lesser Sunda Islands). The oldest valid name available for a Philippine population is *G. simplex* Cabanis, 1872, from Luzon.

The name *Gerygone rhizophorae* was proposed by Mearns (1905), based on a series of 7 specimens from Mindanao. As pointed out by McGregor (1909: 448), Mearns inexplicably failed to compare his alleged new form with *simplex* from Luzon and other islands in the northern Philippines, but McGregor himself gave only a single character to differentiate *simplex* and *rhizophorae,* namely the darker crown colour of *rhizophorae,* of which he saw only a single specimen. Meise (1931: 373), without having examined specimens but partly on the authority of a letter from J. H. Riley of the U.S. National Museum, believed *rhizophorae* to be unworthy of recognition. Furthermore, Meise stated that he could not separate Philippine *simplex* (and numerous other proposed subspecies) from *sulphurea* of the Lesser Sunda Islands on the basis of his material. He did not say how many Philippine specimens he had seen, but it could not have been very many, as he had examined only 25 skins of his comprehensive *sulphurea,* to which he assigned a range extending from the Malay Peninsula through the Greater and Lesser Sunda Islands to Borneo and the Philippines.

Mearn's *rhizophorae* seems to have been largely ignored (and inferentially synonymized with *simplex*) subsequent to Meise's paper. Peters (1939), although mentioning *simplex* and *rhizophorae,* followed Meise uncritically in calling all Philippine populations *sulphurea.* Finally, in 1959, Meyer de Schauensee & duPont, *contra* Meise, listed characters that differentiate *simplex* from *sulphurea.* They also examined a single specimen from Lake Lanao, Mindanao, which they described as agreeing ''with Sumatra birds [*sulphurea*] in having gray [as opposed to white] lores and with Luzon birds in the amount of white in the tail'' and continued ''It is quite possible that Mearns [*sic*] name *rhizophora* [*sic*] based on a Mindanao bird [actually 7 birds] is valid.''. I have found no subsequent comment on the status of *rhizophorae,* and it was synonymized with *simplex* by duPont (1971: 303).

By utilizing the collection resources of the Delaware Museum of Natural History (DMNH) and the American Museum of Natural History (AMNH), I have been able to study a larger and more geographically diverse series of Philippine *Gerygone* than was examined by previous writers. The material at the 2 museums will be considered separately because of an important difference in the age of the specimens. The DMNH collection consists entirely of recent specimens, less than 25 years old. In the AMNH series, on the other hand, there are only 5 ''recently'' collected specimens; 3 from Negros (1955), 1 from Mindoro (1966), and 1 from Saluag, southern Sulus (1971), obtained on exchange from DMNH.

At DMNH I compared 6 specimens from Luzon (type locality of *simplex)* with 3 from Marinduque, 2 from Mindoro, 10 from Cebu, 2 from Mindanao, and 18 from various islands of the Sulu Archipelago (see duPont & Rabor 1973 for localities). The combined series from Luzon, Marinduque and Mindoro is slightly but perceptibly paler and browner (less dark olive) dorsally than the series from Mindanao and the Sulus. There is a tendency for the southern birds to have the crown darker than the back; this is not true of all of the specimens in this series, but *none* of the northern birds exhibits this contrast. This colour difference between the 2 series is certainly not a striking one, and if this were indeed the only character to separate 2 Philippine races (as indicated by McGregor), I could support the suppression of *rhizophorae.* However, the loral character suggested by Meyer de Schauensee & duPont proves to be an excellent and consistent means of separating the northern *(simplex)* and southern *(rhizophorae)* Philippine populations of *Gerygone sulphurea.* All specimens of the northern sample have a conspicuous white area between the eye and the base of the bill. This mark is present in none of the southern sample. A few southern specimens have 3 or 4 small white or partly white feathers at the very base of the bill, but in none does this white area extend anywhere nearly back to the eyes. Meise (1931) attributes to the letter he received from Riley the statement that a white ''Supraloralstreif'' is present in both *simplex* and *rhizophorae;* after examining the DMNH and AMNH series, I am at a loss to account for this statement unless Riley considered the occasional white feathers at the base of the bill of *rhizophorae* enough to constitute a ''Supraloralstreif''. Riley's statement is especially odd in that he examined Mearn's type series of *rhizophorae,* about which Mearns clearly wrote ''From [the Celebes form] it differs in . . . wanting the whitish lores . . .''

The DMNH series from Cebu is clearly intermediate between *simplex* and *rhizophorae.* In dorsal coloration the Cebu birds are nearer to *simplex,* whereas in loral colour they are close to *rhizophorae.* In 4 of the 10 Cebu specimens the loral region is pale, but grey rather than white.

The AMNH series consists of 7 specimens from Luzon, 2 from Mindoro, 3 from Negros, 3 from Sulu (= Jolo) Island, one from Saluag, Sibutu, Sulus (ex-DMNH), and 1 from ''Siassi'' (= Siasi) Island in the Sulus (not the Siassi Island west of New Britain in the Bismarck Archipelago). Study of this series reveals that there is a tendency for all older museum skins to turn a somewhat yellower brown dorsally. Nevertheless, the 3 old Jolo skins, though badly prepared, are clearly different from the Luzon series, being darker and richer, less yellowish or greenish brown dorsally. The one more recent specimen from the Sulus differs from a relatively recent Mindoro specimen just as in the DMNH series. The AMNH series confirms the presence of the white loral streak in Luzon and Mindoro birds and its absence or near-absence in Sulu Archipelago birds.

The 3 specimens from the geographically intermediate island of Negros resemble the DMNH specimens from adjacent Cebu in their dorsal colour. One of these 3 has some 3 white feathers at the base of the bill on each side, one has perhaps 2 feathers white at the base only, and the third lacks any white at all in this area.

I therefore recommend that *Gerygone sulphurea rhizophorae* Mearns be revived for the Yellow-breasted Wren-Warblers of Mindanao and the Sulu Archipelago. I have not examined specimens from Bohol (just east of Cebu), which may be expected to be intermediate between the northern and southern subspecies, just as are those of Negros and Cebu.

Acknowledgements: I am indebted to the authorities of the Delaware Museum of Natural History and the Department of Ornithology, American Museum of Natural History, for access to their respective collections. E. C. Dickinson originally suggested that the validity of *rhizophorae* be reinvestigated. R. S. Kennedy commented usefully on an earlier draft of this paper.

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The supposed occurrence of the White-necked Picathartes *Picathartes gymnocephalus* in Togo

by Robert A. Cheke

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In the 1890's the German collector Ernst Baumann worked in the Misahohé (6°57′N, 0°35′E) area near Kpalimé (6°54′N, 0°37′E) in Togo. Misahohé is on a forested escarpment, where a forest remnant is still present today. On 26 June 1894 Baumann discovered a nest of *Picathartes gymnocephalus* containing young at "Apototsi b. [near] Leglebi" and collected an adult pair there 2 days later (Reichenhow 1897: 34). The locality was described as mountainous and difficult of access. Collar & Stuart (1985), following Bannerman's (1948: 115, 117) account, imply, as he did, that 2 sites, Apotsi (*sic,* Collar & Stuart) and Leglebi were involved, and think it possible that *P. gymnocephalus* may now be extinct in Togo.

In an attempt to identify the breeding site, I have been unable to find the precise place names mentioned, but there is a Leklebi Duga at 6°57′N, 0°29′E in Ghana about 2 km SW of the Leklebi Dafo marked on the map of the Gold Coast in Bannerman (1931). Both these places are near Misahohé, but they are in that part of "Togoland" which voted to join Ghana in the 1956 plebiscite. In modern maps the Leklebi prefix is often dropped (only Duga or Dafo being marked) and on a 1: 50,000 map of 1952 there is a hilly area named Awatotse immediately to the NW of Duga. If I am correct in thinking that this Awatotse is the Apototsi where Baumann found his birds, then there have never been any records of *P. gymnocephalus* in what is now the Republic of Togo and so the question of its extinction there is an abstraction. Nevertheless its discovery in Togo would not be surprising, as suitable habitat remains in the Togolese part of the Atacora chain of hills from Kpalimé north to Fazao (8°42′N, 0°46′E).

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On the type specimens of birds from Lifu, described by E. L. Layard in 1878

by G. F. Mees and C. T. Fisher

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E. L. (Edgar) Layard's (1878a) paper, published in May of that year, contains descriptions of 5 new taxa of birds from the island of Lifu, off the east coast of New Caledonia, namely: *Turdus Pritzbueri, Pachycephala Littayei, Zosterops minuta, Zosterops inornata* and *Erythrura cyanofrons.* There is no mention of the collector, the date of collection or the number of specimens examined except in the case of *Turdus pritzbueri,* where male, female and juvenile are described.

Two months later, the author published a more comprehensive paper on the avifauna of New Caledonia and Lifu, in collaboration with his son, Leopold (Layard & Layard 1878). Confusingly the Lifu birds, described in the first article by Edgar Layard alone, are described again with the indication "n.sp." but without any reference to the earlier publication. In this second paper the origin of the birds from Lifu is revealed:

"... several novelties ... we have been fortunate enough to discover in an old collection belonging to the French colonial authorities, and destined for the Colonial Museum, now in the process of building. This collection was made, as the labels show, by two French gentlemen, M. Guillanton, Lieutenant d'infanterie de Marine, and M. Déplanche, in the island of Lifu, the central island of the Loyalty group ... Unfortunately, exposure to dust, mites, and rats, in ill-fitting cases with broken panes of glass, has damaged most of the specimens beyond recovery, and the defective preparation of M. Guillanton's birds, both as to form and preservation, have especially marked them out for destruction. Still they afford a good foundation for a list of that island's birds, and the new species are so well marked that our wonder is they have escaped detection ... the novelties have so fired the zeal of L.L. [Leopold], that he has started off on a collecting-expedition to the spot ... On his return we may perhaps have some further information to communicate.".

This rather long quotation is necessary in order to make it clear that the type specimens of the 5 new forms from Lifu were not collected by either of the Layards; nor were they ever in their possession. The issue was confused, however, by H. B. Tristram (1879), who acquired specimens from the Layards and remarked, under *Zosterops minuta* and *Z. inornata,* "We have at length received the types of these two species" and, under *Turdus pritzbueri,* "The types of this new and interesting Thrush ... are ... now received".

This misleading information caused Gadow (1883: 199) also to list as types 2 specimens of *Pachycephala littayei* in the British Museum (Natural History), which were collected by Edgar Layard in August 1878, when he too made a collecting trip to Lifu (Layard 1878b). Bangs (1918) pointed out Gadow's error, speculating that the real type had been retained by Layard and might possibly now be in the South African Museum, as Layard had close ties with that institution.

When discussing Tristram's examples of *Zosterops* (formerly housed in Liverpool, following purchase from Tristram in 1896, but lost when this museum was bombed in 1941), Mees (1969) realised that the specimens of

Z. inornata could not possibly be types; they had been collected in August 1878, whilst the description had been published in May of that year. Furthermore, the last lines in the above quotation from Layard & Layard (1878) reveal that it was while Leopold Layard was away collecting in Lifu that his father prepared the type description. Consequently, the specimen of *Zosterops inornata* in the British Museum (Natural History), obtained during the course of this trip by Leopold Layard on 13 January 1878 and listed as a syntype by Warren & Harrison (1971: 258), has no type status. The same is the case with the specimen in the MacLeay Museum, Sydney, dated 9 January 1878, which Mees (1969) thought might possibly have been collected early enough to be a syntype. Regarding *Zosterops minuta,* Mees (1969: 123,140) accepted that the Liverpool specimens had been the types because in Tristram's (1889) catalogue 2 of these birds are noted as having been collected by Edgar Layard in September 1877. It is now apparent that this was not the case, since Edgar did not visit Lifu until the following year and must presumably have obtained this material in September 1878.

Wagstaffe (1978: 19) listed a juvenile male of *Turdus poliocephalus pritzbueri* as "Neotype: T5564. 11th January, 1878. Collected by E. L. Layard.". In fact C.T.F. later found that the collecting label had been written by Leopold (E.L.C.) Layard and that the collecting date was 10 January (Fisher 1981). Wagstaffe chose this particular bird as he thought there was "reasonable certainty that Layard had it before him when he described the species". On this basis, however, it would have been more appropriate to refer to the specimen as a lectotype. Neotypic status could have been conferred on any of the Layards' specimens and it would seem preferable to have selected a good adult male, such as the specimen collected on 23 August 1878 – one of the 2 selected wrongly as types by Tristram (1879) and indeed figured as such in that paper. Wagstaffe's action was contrary to advice received from his successor at Liverpool, Peter Morgan, who suggested (in a letter dated 12 August 1977), that the entry in the type list should run as follows:

"*Turdus pritzbueri* Layard. Neotype . . . T.5550. [Male], Kepenche, Lifu . . . 23rd August 1878 . . . There is no trace of the material in the French Colonial Museum, referred to by Layard . . . Although [T.5564] was collected before the description was published there is no certainty that it was before Layard when he wrote his description. The specimen does not match exactly his description of the juvenile male, the Liverpool specimen having a great deal of continuous dark brown on the under side instead of being irregularly marked with broken bars of sepia . . . Conscious of the problems in selecting a neotype, I have selected that figured topotype which shows the characteristics of the subspecies and not the immature stage represented by the earlier taken juvenile male".

It should, however, be noted that, even had Wagstaffe followed this advice, such designation of a neotype would not have been in accord with rules laid down under the International Code of Zoological Nomenclature (1985, art. 75). His publication (1978) does not qualify as a "revisionary work", nor were there "exceptional circumstances" requiring the selection of a neotype for "solving a complex zoological problem". Consequently, we prefer to regard Wagstaffe's designation as invalid.

There is a total of 7 Layard specimens of *Turdus pritzbueri* from the Tristram collection in the Liverpool Museum; 2 more were exchanged with the Leiden Museum in August 1879 and so do not appear in Tristram's printed catalogue (1889). The Leiden 2 both lack original labels, these having been removed around the end of the century by the then curator at Leiden, O. Finsch, and replaced by his own hand-written labels. One of the specimens was collected on 4 September 1878 but the other, from Kepenche, is mis-dated 28 August 1876 and carries the additional notes "Typical specimen! *'M. pritzbueri'* original label written by Layard". From this it is evident that Finsch, a competent ornithologist, was aware of the value of the original label and it is therefore incomprehensible that he, nevertheless, removed and destroyed it. The copying error in the date on the label written by Finsch (1876 for 1878) is particularly serious, as it might easily have led to the conclusion that this specimen is a syntype. A third Layard specimen in Leiden, a female from Kepenche collected on 20 August 1878, was purchased from the dealer G. A. Frank of Amsterdam, in 1882.

Although the Layards left little room for optimism, it still appeared worth enquiring whether any of the type specimens from the old Colonial Museum might still survive. Information received from F. Hannecart is, unfortunately, not encouraging: the natural history museum in Noumea no longer exists and its collections have been dispersed. Part of the bird collection is entirely lost; another part – including specimens of *Zosterops* and *Pachycephala* from the Loyalty Islands – is in extremely poor condition due to inadequate conservation and insect damage. Amongst the extant birds, which are all mounted, no specimens of *Erythrura cyanofrons* or *Turdus pritzbueri* remain. If the remnant of this collection does include types it might still be of historical interest to try and salvage them, but the fact that the birds are mounted makes it unlikely that any labels survive to distinguish those with type status from material collected much later.

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A new subspecies of Greater Antillean Bullfinch *Loxigilla violacea* from the Caicos Islands with notes on other populations

by Donald W. Buden

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The Turks and Caicos Islands (Fig. 1) are small (up to c. 288 km^2, Middle Caicos), predominately scrub-covered British Crown islands at the south-eastern end of the Bahama archipelago. Specimens of the Greater Antillean Bullfinch *Loxigilla violacea* that I collected on the Caicos Bank during my 1970's surveys of southern Bahaman vertebrates are noticeably smaller than those taken elsewhere in the archipelago. Measurements (mm) of specimens I examined from throughout the range of *L. violacea* (Tables 1 & 2) include wing length (flattened against the ruler), tail length (base to tip of longest rectrix), total length (tip of bill to tip of tail and on freshly-dead specimens only), bill length (exposed culmen), bill width (between lore and nostril) and bill depth (at base of exposed culmen).

Endemic to the West Indies, *L. violacea* is known from the Bahamas (includ-

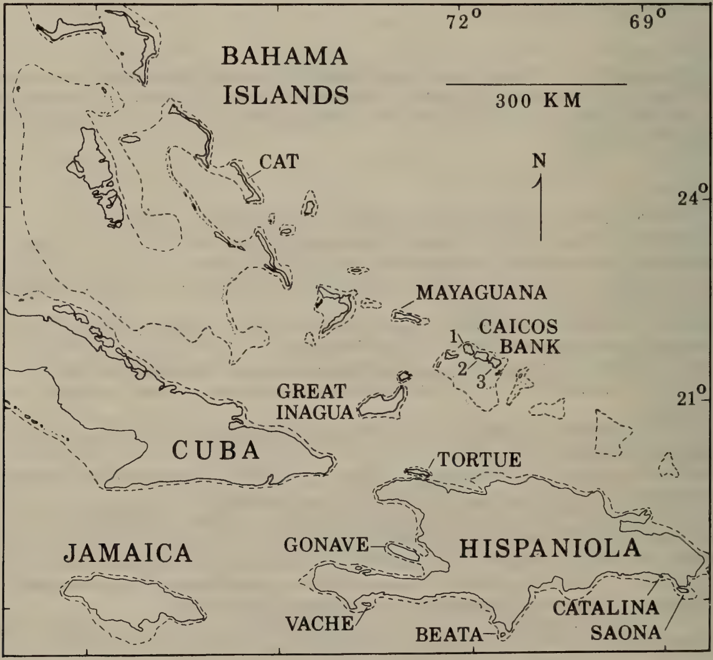
72°
69°
BAHAMA
ISLANDS
300 KM
CAT
N
24°
MAYAGUANA
CAICOS
BANK
1
2
3
GREAT
INAGUA
21°
CUBA
TORTUE
JAMAICA
GONAVE
HISPANIOLA
CATALINA
VACHE
BEATA
SAONA

Figure 1.

TABLE 1

Mean ± 1SD, sample size and range for measurements (mm) in 6 samples of *Loxigilla violacea.* N[orthern] Bahamas specimens are from Grand Bahama, Great and Little Abaco, the Berry Islands, Andros, New Providence, Eleuthera and Cat Island.

Characters	N Bahamas	Great Inagua	Caicos Islands	Hispaniola	Jamaica
			MALES		
Wing length	77.4±2.0 (50) 72.0-82.0	74.4±2.5 (9) 72.0-79.0	73.3±1.8 (8) 71.0-77.0	75.8±2.2 (46) 69.0-80.0	82.1±2.0 (17) 79.0-86.0
Tail length	66.8±2.6 (62) 62.1-74.5	62.8±2.7 (19) 58.6-66.7	62.0±2.5 (8) 57.9-65.3	65.2±2.7 (46) 60.6-71.1	68.6±2.2 (19) 64.7-73.8
Total length	159.8±5.4 (11) 153.0-172.0	153.0±2.7 (3) 150.0-155.0	148.8±5.5 (8) 141.0-155.0	156.3±5.9 (34) 140.0-168.0	— —
Bill length	14.3±0.7 (62) 12.2-16.3	14.6±0.9 (21) 13.2-16.5	14.6±0.5 (8) 13.9-15.3	14.0±0.8 (46) 11.8-15.7	14.9±0.6 (19) 13.6-15.7
Bill width	7.7±0.4 (65) 7.0-8.7	7.8±0.6 (21) 6.6-9.0	7.3±0.4 (8) 6.8-7.9	7.6±0.3 (46) 6.8-8.5	8.2±0.2 (19) 7.9-8.6
Bill depth	11.7±0.8 (33) 9.8-13.1	11.8±1.2 (9) 10.0-13.8	11.4±0.3 (8) 10.9-11.8	10.5±1.0 (25) 8.1-12.5	11.8±0.6 (15) 10.7-12.8
			FEMALES		
Wing length	73.1±2.2 (18) 70.0-79.0	71.5±0.7 (2) 71.0-72.0	67.8±0.9 (8) 66.0-69.0	72.0±2.4 (22) 68.0-77.0	78.2±3.5 (6) 75.0-84.0
Tail length	62.2±2.0 (19) 57.6-66.0	60.8±4.1 (12) 54.4-67.0	56.5±1.2 (9) 54.8-59.0	61.3±2.3 (21) 56.1-65.3	66.5±3.4 (6) 61.4-71.7
Total length	147.7±11.0 (3) 135.0-155.0	142.0 (1) —	138.9±5.6 (8) 128.0-147.0	152.2±6.8 (10) 142.0-164.0	— —
Bill length	13.2±0.7 (20) 12.0-14.5	14.2±1.0 (13) 13.2-16.0	12.6±0.5 (9) 12.0-13.3	12.6±0.8 (22) 11.2-14.9	13.9±1.0 (6) 12.8-15.5
Bill width	7.0±0.2 (20) 6.6-7.5	7.7±0.8 (12) 7.0-9.0	6.6±0.3 (9) 6.2-7.0	6.8±0.4 (22) 6.3-7.9	7.6±0.7 (6) 7.1-8.8
Bill depth	10.6±0.2 (12) 10.2-11.0	12.1±1.4 (8) 10.0-13.4	9.7±0.4 (7) 9.4-10.4	9.3±0.8 (14) 8.4-11.6	10.8±1.0 (6) 9.9-12.3

ing Caicos Islands), Hispaniola and many of its satellite islands and Jamaica. The names and ranges of the subspecies reported by Bond (1956) are: nominate *violacea* (Linnaeus), Bahamas; *ruficollis* (Gmelin), Jamaica; *affinis* (Ridgway), Hispaniola and Ile de la Gonâve and Isla Saona (off the western and southern coasts of Hispaniola, respectively); *maurella* Wetmore, Ile de la Tortue (off the northern coast of Hispaniola); *parishi* Wetmore, Ile-à-Vache, Isla Beata and Isla Catalina (off the southwestern, south-central and southeastern coasts of Hispaniola, respectively).

The Catalina population was reassigned to *affinis* by Schwartz & Klinikowski (1965); Bond (1969) concurred. Bond *(fide* Paynter 1970) indicated that specimens from Saona, Gonâve and Tortue were indistinguishable from each other and Paynter (1970) elected to include all of them under *maurella.* However, as the only specimens from Tortue are larger (at least in wing length) than those taken elsewhere in the Hispaniolan region, I consider *maurella* endemic to Tortue. Faaborg (1980) found no appreciable differences between *L. violacea* from Saona and the adjacent part of Hispaniola (specimens captured, measured and released), but he reported that individuals from Beata averaged slightly larger in body weight and wing length than did those from an adjacent area of Hispaniola and that both samples averaged smaller than those from Saona and southeastern Hispaniola.

TABLE 2

Mean, range and sample size for wing and tail length measurements (mm) of *Loxigilla violacea* from satellite islands off the coast of Hispaniola.

	MALES				FEMALES			
	Wing		Tail		Wing		Tail	
Locality		n		n		n		n
Tortue	83.8 (82.0-84.0)	3	69.3 (67.7-70.1)	3	80.0 ( )	1	64.7 ( )	1
Gonâve	78.1 (75.0-81.0)	9	64.9 (61.9-67.3)	8	73.8 (73.0-74.0)	4	60.5 (59.5-61.4)	3
Ile-à-Vache	74.2 (72.0-76.0)	6	64.7 (61.4-67.2)	6	68.0 ( )	1	57.0 ( )	1
Beata	73.5 (72.0-75.0)	4	58.3 (54.9-60.8)	4	71.0 (70.0-72.0)	2	58.6 (58.0-59.1)	2
Catalina	80.0 ( )	1	65.9 ( )	1	74.0 ( )	1	63.2 ( )	1
Saona	80.0 ( )	2	69.6 (69.4-69.8)	2	—		—	

Figure 1. Map of Southern Bahamas showing principal islands mentioned in the text.

Figure 1. 1 = North Caicos, 2 = Middle Caicos, 3 = East Caicos.

L.v. parishi supposedly is distinguished from all the other subspecies by its smaller size (Wetmore 1931), but this is not confirmed by any measurements of topotypes from Ile-à-Vache. In the absence of demonstrated chromatic or mensural differences between specimens from Vache and Hispaniola, I merge *parishi* with *affinis,* as did Bond (1940) in the first edition of his check-list. Specimens from Beata, however, average slightly smaller than those from Hispaniola generally and the 4 males from Beata average smaller than 6 from Pedernales Province on the adjacent Hispaniolan mainland (wing length 74-78 mm, av. 76.3; tail length 63.2-71.1, av. 67.1). Also, 2 immatures from Beata (USNM 327956, 327960) are paler grey and have more white on the venter than do those from Hispaniola; they more closely resemble examples from the Bahamas. Additional material may show the Beata population to be distinguishable subspecifically, but I tentatively include it under *affinis.* I thus recognise only 2 subspecies in the Hispaniolan region, namely *maurella* on Tortue and *affinis* elsewhere.

The subspecies of *L. violacea* are distinguished both by average differences in size (evidenced mainly by wing and tail measurements) and depth of coloration. The largest birds are from Jamaica (*ruficollis*) and Tortue (*maurella*). The Tortue birds are lustrous black, whereas those from Jamaica are dull greyish-black. Chestnut markings on the head tend to be slightly paler in Jamaican birds than in those from other islands and the immatures from Jamaica are darker (more olive above and below, less grey or greyish-white below) than those from elsewhere. Specimens from Hispaniola (*affinis*) average smaller than Bahaman (*sensu stricto*) birds (*violacea*). Immatures from the Bahamas tend to be paler (with less olive and more grey above and more grey or greyish-white below) than those from Hispaniola; Bahaman adults (especially males) tend to be less glossy than Hispaniolan adults. Specimens from Great Inagua, at the southern end of the Bahama chain, are assigned to *violacea* although they tend to have smaller wing and tail measurements than do specimens from the more northern islands. One immature from Inagua chromatically resembles specimens from Hispaniola, another is intermediate between Hispaniolan and northern Bahama specimens. Variation in size among Bahaman birds is not clinal; the largest are from Cat Island, in the east-central part of the archipelago.

The Caicos Islands have been included in the range of the nominate race by previous authors apparently on geographic grounds and based on one *L. violacea* taken in 1891 (see below). In most measurements, however, Caicos birds average smaller than those from all adjacent areas and I propose they be assigned to a new subspecies:

Loxigilla violacea ofella subsp. nov.

Holotype. LSUMZ 81554; adult male; Jacksonville, East Caicos, Turks and Caicos Islands; collected 8 March 1976 by D. W. Buden.

Diagnosis. Smallest of the subspecies of *L. violacea* and most readily distinguished from them by its smaller wing length measurement – most marked between females in the cases of nominate *violacea* and of *affinis.* In wing length, 8 females of *ofella* (66.0-69.0 mm) are separated completely from 20 females of *violacea* from throughout the Bahamas (70.0-79.0) and overlap but narrowly with 22 of *affinis* from Hispaniola (68.0-78.0); no specimen of *ofella* (of either sex) measures as large as the smallest *maurella* or *ruficollis.* Adults of *ofella* are less glossy than those of *maurella* and (at least when adequate series are compared) most *affinis* from Hispaniola.

Range. Known definitely only from Middle and East Caicos islands in the Turks and Caicos Islands in the extreme southeastern part of the Bahama archipelago.

Etymology. Latin, *ofella,* a little piece of meat, a cutlet, a bit or morsel, in reference to the small size of individuals comprising this subspecies; a noun in apposition.

Specimens examined.

L.v. violacea, 87♂♂, 37♀♀, 2 unsexed. Bahama Islands: Grand Bahama 1♂ (MCZ); Great and Little Abaco 1♂ 1♀ (AMNH), 3♂♂ 1♀ (AS), 2♂♂ 1♀ (UNSM); Berry Islands 5♂♂ (FMNH); Andros Island 6♂♂ 1♀ (AS), 1♀ (MCZ), 1♂ (USNM); New Providence 5♂♂ (AMNH), 1♀ (AS), 1♂ (LSUMZ), 14♂♂ 4♀♀ (MCZ), 1♂ (UF), 9♂♂ 2♀♀ 1? (USNM); Eleuthera 2♂♂ (AS), 6♂♂ 1♀ (FMNH), 1♂ (MCZ), 2♂♂ 3♀♀ 1? (USNM); Cat Island 5♂♂ 4♀♀ (USNM); Highborne Cay 1♀ (MCZ); Anna's Tract, off Great Exuma 1♀ (MCZ); Crooked Island 2♀♀ (LSUMZ); Acklins Island 1♂ 1♀ (USNM); Great Inagua 2♂♂ 1♀ (AS), 12♂♂ 11♀♀ (FMNH), 1♂ (LSUMZ), 2♂♂ (MCZ), 4♂♂ (USMN).

L.v. ofella, 8♂♂, 9♀♀. Caicos Islands: Middle Caicos 2♂♂ 3♀♀ (LSUMZ), East Caicos 6♂♂ 5♀♀ (LSUMZ); unspecified locality 1♀ (FMNH).

L.v. affinis, 71♂♂, 31♀♀. Hispaniola: República Dominicana 36♂♂ 8♀♀ (AS), 3♂♂ 2♀♀ (MCZ); Haiti 1♂ 3♀♀ (AS), 7♂♂ 8♀♀ (USNM), 2♂♂ 2♀♀ (YPM). Ile de la Gonâve: 1♂ (AS), 7♂♂ 3♀♀ (USNM), 1♂ 1♀ (YPM). Isla Saona: 2♂♂ (AS). Isla Catalina: 1♂ 1♀ (AS). Isla Beata: 1♂ (AS), 3♂♂ 2♀♀ (USNM). Ile-à-Vache: 3♂♂ (AS), 3♂♂ 1♀ (USNM).

L.v. maurella, 3♂♂ 1♀. Ile de la Tortue: 1♂ (MCZ), 2♂♂ 1♀ (USNM).

L.v. ruficollis, 19♂♂, 6♀♀. Jamaica: 2♂♂ 2♀♀ (AS), 17♂♂ 4♀♀ (MCZ).

Immatures not included above were used in some of the colour comparisons.

Remarks. Loxigilla violacea is a fairly common resident in scrub and woodlands in the Bahamas, whence reported from Grand Bahama, Abaco, Bimini, the Berry Islands, Andros, New Providence, Hog Island (=Paradise Island), Eleuthera, Harbour Island, Cat Island, Highborne Cay, Exuma (=Great Exuma?), Long Island, Acklins Island, Mayaguana (but see below), the Caicos Islands and Great Inagua (Bond 1956, 1957, 1966). To this list may be added Crooked Island (2♀♀, LSUMZ, collected 8 & 10 April 1972) and Little Inagua (sight record, 13-15 March 1976 – M. H. Clench).

Cory (1892a) included Mayaguana among the islands whence *L. violacea* had been taken by Winch in 1891. Although most of Winch's southern Bahaman material now is at the Field Museum of Natural History, Chicago (FMNH), neither I nor Dianne Maurer of the museum staff found any specimens of *L. violacea* from Mayaguana there, nor entries for any in either the FMNH catalogue or Cory's personal catalogue. I spent 29 days on Mayaguana (7-14 May 1972, 29 September to 19 October 1976) without seeing a bullfinch and Bartsch (unpublished notes, USNM archives) did not include *L. violacea* among the birds seen there 19-22 July 1930. In the absence of any substantial evidence proving that *L. violacea* inhabits or inhabited Mayaguana I consider reports of its presence there questionable.

Cory (1892b) reported *L. violacea* on North, Middle and East Caicos islands. I found only one specimen from the Caicos Islands (no other locality given) in the FMNH and only one was listed by Hellmayr (1938). That I saw no bullfinches on North Caicos during visits totalling 42 days during the 1970's and that M. H. Clench did not see any there during 10 days in February 1978 is surprising, as this island is separated from Middle Caicos by a channel only several hundred to 1000 m wide. *L. violacea* would be expected on North Caicos on grounds of proximity to thriving populations and the availability of apparently suitable habitat, but in the absence of conclusive documentation I treat Cory's record as questionable.

Chapman (1891) concluded that most species of birds in the Bahamas are of relatively recent origin from Antillean populations and that Cuba has been the source of most of them. Bond (1948) stated there is no conclusive evidence to support a claim for Hispaniolan origin of any species of bird resident in the Bahamas, having previously suggested (Bond 1939) that Bahaman populations of *L. violacea* may have been derived from a Cuban population that has since been extirpated. However, morphological similarities between *L. violacea* from the southernmost Bahamas and Hispaniola together with the geographic proximity of these islands to each other lend support to the hypothesis of a Hispaniola to Bahamas route of colonization for this species. If *L. violacea* inhabited Cuba at one time, as Bond (1939) suggested, the possibility of a bipartite invasion of the Bahamas also would have to be considered – the northern islands colonized from Cuba and the southern islands colonized from Hispaniola. In any event, *L. violacea* in the Caicos Islands are mensurally, on the average, more similar to those of Hispaniola than to those from the more northern islands. They most closely resemble examples of *affinis* from Beata. That the Caicos Islands and Beata (off northern and southern coasts of Hispaniola, respectively) are small and xeric may have contributed to convergence in the size of *L. violacea* there.

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Catamblyrhynchus and *Paradoxornis:* an unremarked instance of convergence in bill morphology for feeding on bamboo

by Storrs L. Olson

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Regular work in a major museum inevitably results in serendipitous discoveries which there may be no opportunity to investigate in detail. The following observations report one such revelation and are offered in the hope that they will stimulate further research.

The Plush-capped Finch *Catamblyrhynchus diadema* is a peculiar member of the New World 9-primaried oscines (Fringillidae in its broadest sense) that occurs in the Andes of South America from Venezuela to Bolivia. Its more precise relationships have remained obscure and it was long carried in its own family, Catamblyrhynchidae, thought to be allied to the tanagers (Thraupidae *auct.*). It is characterized by a distinctive, short, wedge-like bill with a flattened culmen, and a bright yellow cap of plush, bristly feathers. Almost nothing was known of the habits of *Catamblyrhynchus* until Hilty *et al.* (1979) showed it to be strongly associated with stands of bamboo, in which the birds "forage on bamboo stalks by clinging upright, vertically, or upside down, adopting these chickadee (*Parus*)-like postures with versatility. They press their short swollen bill directly into the axiles of dense leaf whorls at each node, sometimes tugging vigorously, or running the bill along the bamboo stems with a series of tiny biting motions''. Hilty *et al.* reported the contents of 3 stomachs as containing ''small bits of bamboo leaf,'' ''vegetable matter,'' and ''insect remains''.

After reading this account, curiousity led me to examine skeletons of *Catamblyrhynchus* to see what the underlying structure associated with such a distinctive feeding method might be. Examination of skulls of *Catamblyrhynchus* recalled a similar configuration I had seen in some other species, which eventually led me back to the largely Himalayan genus *Paradoxornis,* the so-called parrotbills, in which the overall morphology of the skull in several species is strikingly similar to that of *Catamblyrhynchus.* Although there is considerable diversity in bill shape among the different species of *Paradoxornis,* in some, especially the smaller ones such as *P. fulvifrons, P. poliotus* and *P. gularis,* the external morphology of the bill closely resembles that of *Catamblyrhynchus.* It was then most interesting to find that the members of the genus *Paradoxornis* as a whole are almost always reported as being associated with bamboo, in which they forage in an active tit-like manner (Ali 1962; Ali & Ripley 1971). With such similar feeding adaptations and habitat predilictions, at least some of the species of *Paradoxornis* may be assumed to feed in a similar manner and on similar food to that taken by *Catamblyrhynchus.*

As in the case of *Catamblyrhynchus,* the 17 species of *Paradoxornis,* with their larger relative *Conostoma,* which is also associated with bamboo, have often been segregated in their own family, Paradoxornithidae, and in the past they have been allied with the Corvidae, Paridae or Timaliidae (Stuart Baker 1922). In most recent classifications they are placed among the Timaliidae, in which Deignan (1964) included them with *Panurus* as a subfamily Panurinae. Regardless of their origins, *Paradoxornis* and *Conostoma* belong somewhere among the ''Old World insect-eating'' oscines and are not closely related to the New World 9-primaried group. Therefore, the clear similarity in feeding adaptations between *Paradoxornis* and *Catamblyrhynchus* must be due purely to convergence.

Catamblyrhynchus has been thought to be related either to the tanagers (Thraupinae) or the emberizine finches (Emberizinae). Its plumage pattern and coloration (clear grey above, dark chestnut below, rufous superciliary) are suggestive of certain other high Andean genera of 9-primaried oscines such as *Poospiza (Compsospiza) garleppi* (Emberizinae), *Hemispingus rufosuperciliaris* (Thraupinae), *Conirostrum rufum* (''Coerebidae''), and *Oreomanes frazeri* (''Coerebidae''). A closer affinity than is usually admitted has already been suggested for some of these genera (Olson, *in* Wetmore *et al.* 1984: 498; Schulenberg 1985), and *Catamblyrhynchus* may perhaps belong to a montane radiation of birds with very divergent feeding adaptations that have obscured their origins, as feeding adaptations are notoriously poor indicators of relationships among passerines (e.g. see Olson & Ames 1984).

In order to understand how the feeding adaptations of *Catamblyrhynchus* and *Paradoxornis* may have evolved, it is necessary to determine their closest relatives more precisely. For example, did the ancestors of *Paradoxornis* have a bill morphology similar to that of the ancestors of *Catamblyrhynchus,* or did each evolve their convergent similarities from ancestors that had significantly different feeding adaptations from one another? Research is also called for to determine precisely how the feeding adaptations of *Catamblyrhynchus* and the various species of *Paradoxornis* are used.

Catamblyrhynchus has evolved a key adaptation that has not led to subsequent radiation, yet in the paradoxornithines an apparently similar adaptation has given rise to a fairly large radiation of species, some with modifications of the bill that depart rather significantly from the *Catamblyrhynchus* type. Thus, within the paradoxornithines, the full extent of morphological divergence and radiation needs to be explored to ascertain which forms are primitive and which may secondarily have evolved further specializations.

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Recent work on the origin and suppression of bird species in the Cape Verde Islands, especially the shearwaters, the herons, the kites and the sparrows

by W. R. P. Bourne

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When Charles Darwin visited the Cape Verde Islands in January 1832 at the beginning of his voyage in H.M.S. *Beagle,* he collected 2 sparrows, one of which appears to be native to the islands, and the other a recent arrival from the north. When he later began to speculate about the remarkable wildlife of the Galapagos, where sparrows are replaced by an array of endemic finches, he compared the Galapagos with the geographically similar but biologically less remarkable North Atlantic islands (especially Madeira and Bermuda, which were better known), and concluded that the peculiar features of the Galapagos must be due to their greater isolation, since variation is likely to be suppressed at accessible sites by the continual immigration of mainland forms (Darwin 1861).

Although it is now known that a number of remarkable endemic forms have been lost from the Atlantic Islands following the arrival of man, as recently reported by Pieper (1985) for Madeira, Darwin's main conclusions still appear to hold. Since I failed to deal with his points adequately in my previous discussions of the birds of the Cape Verde Islands (Bourne 1955a, b, c, 1957, 1966), which unfortunately are not summarised very accurately by the Bannermans (1968), it may be useful to consider them in the course of a summary of recent work on the birds of the islands. Thanks to assistance from Denis Summers-Smith it is now possible to extend the Bannermans' chronological list of past contributions to Cape Verde Islands' avifauna (p. xxv-xxxi).

Naurois, R. de (1969a). A valuable summary of observations during an extended exploration of the group in the 1960s, already communicated to the Bannermans, followed by a supplement (1984), and a series of notes on individual species, including the Greater Flamingo *Phoenicopterus ruber* (1969b), Peregrine *Falco peregrinus madens* (1969c, 1970), Buzzard *Buteo buteo bannermani* (1973), Kite *Milvus (milvus) fasciicauda* (1972), Moorhen *Gallinula chloropus* (1968), Little Egret *Egretta garzetta* (1982a), Barn Owl *Tyto alba detorta* (1982b), Grey-headed Kingfisher *Halcyon leucocephala actaeon* (1983) and Brown-necked Raven *Corvus ruficollis* (1981).

Norrevang, A. & den Hartog, J. C. (1983). Ornithological observations during brief visits with a marine biological expedition to 9 of the islands in June 1982, only missing Maio, Sal, Branco and the Rhombos islets. Supposed Buzzards were reported on Fogo and for the first time on Brava, where the Osprey *Pandion haliaetus* and possibly House Martins *Delichon urbica* were breeding, the Spanish Sparrow *Passer hispaniolensis* had reappeared, and a pallid Swift *Apus pallidus* was seen.

Summers-Smith, D. (1984a, b, c). A report on brief visits to S. Antao, S. Vicente, S. Tiago and Fogo in October 1983. The Bar-tailed Godwit *Limosa lapponica* was reported for the first time; the author reports that the first record of *Halcyon leucocephala* for S. Vicente (1984a: Table 1) is a misprint for Fogo. The specific status and ecology of the sparrows *Passer* sp. are discussed by the author in separate notes.

Anon. (1985). A summary of observations important for conservation during the first 2 of a continuing series of guided tours in a yacht in February and March 1985. The Magnificent Frigate-bird *Fregata magnificens* and local race of the Purple Heron *Ardea purpurea bournei* were found to survive, and the endemic Raso Lark *Alauda razae* still had a population of 150-200 birds despite the recent droughts.

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NOTES ON SPECIES

CORY'S SHEARWATER *Calonectris diomedea edwardsi*

Norrevang & den Hartog (1984) follow Bannerman & Bannerman (1968) in treating the larger shearwater of the islands as a distinct species because it appears conspicuously smaller, and somewhat darker, notably in the bill, than the more northerly Atlantic populations. I considered this when I first described the difference (Bourne 1955b), but as reported by Murphy & Chapin (1929), the extreme forms of variation in the Atlantic are linked by overlapping intermediate populations in the Mediterranean (Table 1). Evidence continues to accumulate that the birds are all very similar in their behaviour and ecology, breeding at the same time and in the same way in the summer, when they feed on small fish driven to the sea surface by tuna (de Naurois 1969a and pers. obs.). Also it now appears that the Cape Verde birds winter south to 24°S, in comparable latitudes of the South Atlantic to their northern range, whereas the northern races occur to 48°S (Bourne & Curtis 1985).

TABLE 1

Size and proportions of races of Cory's Shearwater *Calonectris diomedea*

				Wing				$\sqrt{}^{2}$ wing
Race	n	Wing	Tail	Tail	Origin	n	Weight	$\sqrt{}^{3}$ weight
C.d. borealis	19	359	137	2.62	Salvages	52	945	3.44
C.d. diomedea	20	337	125	2.70	Tunisia	27	731	3.53
					Malta	15	639	3.63
					Crete	37	535	<3.82
C.d. edwardsi	12	309	125	2.47	Cape Verde Islands (Raso)	8	483	>3.75

Notes: Approximately equal numbers of male and female skins were measured (mm) personally. Weight in g from Zino (1971), taken before incubation on the Salvages; from Jouanin (1976), taken before incubation on Zembra off Tunisia; from Round & Swann (1977), incubating birds from Malta and birds feeding young (and therefore probably light) off Crete; and from Norrevang & den Hartog (1984), mean of 6 males and 2 females before incubation (and therefore probably heavy) in the Cape Verde Islands. The scale on which the weight of these birds fluctuates seasonally is indicated by the fact that 2 healthy *C.d. borealis* which came on board a ship at 38°S, 42°W in the South Atlantic on 10 February 1985 weighed 690 and 720 g. Whereas the tail is comparatively short compared to the wing in the Mediterranean and long in the Cape Verde Islands, the wing becomes longer in proportion to the body size in the smaller forms.

LITTLE SHEARWATER *Puffinus assimilis boydi*

As in *C. diomedea,* confusion has prevailed over whether this, the smaller local shearwater, should be treated as a race of the Little Shearwater *Puffinus assimilis* of the temperate Atlantic islands, or of the tropical Audubon's Shearwater *P. lherminieri* of the West Indies, since it appears to be intermediate in many ways, not least its appearance at sea (Table 2, and pers. obs.). Its uncertain status is emphasised by the discovery that small shearwaters of unknown origin are widespread on both sides of the tropical Atlantic south of the Cape Verde Islands, where a bird resembling the Cape Verde form was found visiting St Helena in 1975-76 (Bourne & Loveridge 1978), so that it seems possible it has a tropical distribution at sea. Since at least 18 other rather similar allopatric forms of small shearwater have now been described, all of which appear also to behave rather similarly, which could easily be considered as members of up to 6 species, the best solution may well be to follow Vaurie (1965) and combine them all into one species.

TABLE 2

Size and proportions of Atlantic allies of *Puffinus assimilis*

Race	Origin	n	Wing	Tail	Culmen	Tarsus	Toe	Wing/tail	Wing/tarsus
lherminieri	West Indies	18	201	86	29.2	40.4	45.0	2.34	4.98
boydi	Cape Verde Is	18	186	78	25.1	37.3	41.5	2.38	4.99
baroli	N. Atlantic Is	15	178	70	25.2	36.9	40.9	2.54	4.82
elegans	Tristan-Gough	14	187	68	26.1	39.9	44.1	2.75	4.69

Notes: Measurements (mm) were made personally. It will be noted that while the birds which occur alone in the West Indies are largest, and that the birds which occur with more distantly related large shearwaters in the Cape Verde Is and the Tristan-Gough group are intermediate, that the northern populations, which also occur with the closely-related, intermediate-sized, Manx Shearwater *P. puffinus* are smallest. The tail becomes shorter but the tarsus longer in the cool water forms on both sides of the equator, implying more aquatic habits.

PURPLE HERON *Ardea purpurea bournei* and CATTLE EGRET *Bubulcus ibis*

Confusion has occurred over the status of the herons on S. Tiago. The Bannermans (1968) deduced that because I originally reported that part of the colony at San Domingos was located in rubber trees, yet they themselves later found them breeding in mangoes, that I could not distinguish between these trees. In addition, Summers-Smith (1984a) was unable to find the species at all. It is possible the birds may have moved between the time when I found them nesting in the centre of the valley, in 1951, and when the Bannermans found them nesting in a ravine in 1966; in the interval the original trees, which were rather conspicuous, may have been cut down. By 1984 the colony may have moved again, possibly because rather many birds appear to have been collected during a few years in the 1960s. Apparently the rather distinct local race of Purple Heron, which originally had several colonies, still survives (Anon. 1985), but obviously needs more protection.

KITE sp. *Milvus (milvus) fasciicauda*

I agree with Summers-Smith (1984a) that the birds seen around nest sites and foraging inland on S. Vicente, S. Tiago and Brava seemed mostly similar to Red Kites *Milvus milvus,* with contrasting markings and more rufous and white in the plumage, although they had shorter, less deeply forked tails than the nominate form; whereas those seen hawking along the shore and around ships anchored off Praia, which I assumed to be immature, appeared darker and more uniform, like Black Kites *M. migrans.* Three birds in the British Museum (Natural History) (BMNH) from S. Nicolau belong to the first type, 3 from Maio belong to the second, and a single bird from the humid island of Brava is darker than any of the others. As in the case of the Kestrel *Falco tinnunculus* (Bourne 1955c) it seems increasingly likely that there has been some hybridisation between the native stock and stray migrant Black Kites, as suggested by de Naurois (1972), and that hybridization has been commoner on the islands nearer the mainland.

GUINEA FOWL *Numida meleagris*

Frade (1976) has described the local birds, usually assumed to have been imported (although Norrevang & den Hartog (1984) point out that they were present as early as 1594), as an endemic race *N.m. bannermani,* distinguished by the possession of a short wing, at least in the male, and a greyish-fulvous instead of greyish-vinous collar compared to birds from Guinea-Bissau. Six birds from the Cape Verde Islands in the BMNH taken in November and December, when they were probably in faded plumage after breeding, certainly have pale collars compared with most from the mainland, where this character seems rather variable. Some from the mainland also have pale collars, and since the wing-length of Cape Verde birds falls within the range found on the mainland, it seems doubtful whether recognition of this race is justified.

IAGO or RUFOUS (-BACKED) SPARROW *Passer iagoensis*

A number of the criteria recently advanced by Summers-Smith (1984b) for treating the local form of Rufous-backed Sparrow as a distinct species, such as the possession of a short wing, variations in pigmentation, sexual dimorphism, abundance, sociability, its ecological niche, and nest site preferences, all appear to be general phenomena among the island birds (Bourne 1955a); but his taxonomic treatment avoids a tiresome change of name.

Norrevang & den Hartog (1984) report that this was the commoner of the 2 species of sparrow seen at S. Felipe, Fogo, on 10 June 1982, whereas Summers-Smith (1984a, b, c) only found *P. hispaniolensis* there in October 1983. I was certainly informed that both species occurred there in 1951 by a witness who could demonstrably tell them apart. Since Summers-Smith (1984c) also states that nobody except Boyd Alexander (1898) has reported this species nesting in trees after I wrote that it prefers to nest ''in crevices, failing crevices in trees, and failing trees on the ground under stones in the open desert'' (Bourne 1955a: 549), it also seems worth repeating that I can still remember seeing in 1951 scattered nests typical for members of this genus built in the dense centres of low acacias growing in open country otherwise lacking nest sites on the southern slopes of S. Tiago, at a time when there was a large population after several years with good rains.

SPANISH SPARROW *Passer hispaniolensis*

The Spanish Sparrow, which has colonised man-made habitats in the Canary and Madeira groups, was already established on the larger eastern Cape Verde Islands by the time that naturalists arrived in the last century. By 1951 it had become common in the open central valley of the small and arid, but heavily populated, western island of S. Vicente, at which time it had, however, died out on the even smaller, but more rugged and fertile, southern island of Brava following a drought (Bourne 1955a). It first appears to have been collected on the small island of Branco in November 1970, and on the large and even more rugged westernmost island of S. Antao in November 1972 (Frade 1976), though it has as yet not been found on the latter again. By 1982 it had reappeared on Brava where I had searched and failed to find it, and was then also reported again on S. Vicente (Norrevang & den Hartog 1984). It now probably occurs in suitable places throughout the larger islands, although apparently scarcer on the more mountainous ones.

HOUSE SPARROW *Passer domesticus*

This species, which occupies a similar niche to *P. hispaniolensis* on the Azores and Bermuda, appears to have arrived before *P. hispaniolensis* in the main port of Mindelo on S. Vicente, in the western Cape Verde Islands, between 1922 and 1924 (Bourne 1966). It has survived there ever since without spreading, despite a certain amount of hybridisation with *P. hispaniolensis* (de Naurois 1969a), possibly because, unlike the other sparrows, it may prefer to nest in the spring (Lambert 1980). Although it was not seen by Norrevang & den Hartog (1984), when they reported Spanish Sparrows there in 1982, it was found again the following year by Summers-Smith (1984a, b, c), who in turn failed to find the other species, apart from one hybrid.

DISCUSSION

In general, although a high proportion of the native birds of the Cape Verde Islands were originally described as distinct species, nearly all of them merely show an extreme degree of well-known zoogeographical trends of variation commonly found in widely distributed species, including for example a reduction in size and an increase in the proportions of the extremities in lower latitudes in the seabirds, a short wing but large bill in the landbirds, and an increase in brown pigmentation in many species (Bourne 1955a). It is often an entirely arbitrary decision whether they should be regarded as distinct species or as races.

It is notable that the groups of birds which show most variation within the islands include 2 where common migrants are now swamping small endemic populations, in one case of the same species and one of a closely allied species. Similar reactions appear to be occurring between 2 recent arrivals, as follows:–

1. The Kestrel *Falco tinnunculus* has a stepped cline running south through the Canaries and Cape Verde Islands, where in each case the birds of the easternmost islands, nearest the continent, which must receive most migrants, are closer in appearance to the mainland form; whereas the birds of the outer islands, shielded by the inner islands from reinforcement, are more distinct (Bourne 1955c, 1957, 1966).

2. The Red Kite appears to be a Pleistocene relict in the Atlantic Islands, and the Cape Verde birds must now be receiving few, if any, reinforcements of their own species from the mainland. These have been replaced by migratory Black Kites from the east, which may then have hybridised with the Red Kites of the inner islands (de Naurois 1972).

The Iago Sparrow also appears to be a Pleistocene relict, now widely separated from its declining relatives in Africa, although it has become numerous and successful in the islands. As a result of changes due to man, it appears to have been joined quite recently by the mobile Spanish Sparrow from the north, which has displaced the Iago Sparrow from the more highly developed areas without hybridising with it. In turn, the Spanish Sparrow has been replaced by a closer relation, the House Sparrow, in the centre of the most highly developed town in the group, Mindelo, on S. Vicente, where they have begun to hybridise, with results which are not yet entirely clear; it seems, though, that the House Sparrow may predominate in the town (Summers-Smith 1984a, b, c) and the Spanish Sparrow in the country (Norrevang & den Hartog 1984).

It would appear that islands may provide important refuges for birds during periods of climatic or ecological fluctuation occurring on the mainland, as for example with the Pleistocene relict species found in the Atlantic Islands. Island birds also commonly show much local geographical variation. On the other hand, in the absence of regular contact with related species, they appear to develop few specific isolating mechanisms, and indeed those operating elsewhere appear to break down, leading to hybridisation with visitors of closely related species (which remain distinct on the mainland), as in the case of the Cape Verde Kites, and the House and Spanish Sparrows at a number of marginal islands and oases in the area where their ranges overlap. This implies that it is necessary to adopt a rather cautious policy in treating peculiar endemic insular forms as distinct species.

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Data on the distribution of some species of raptors in Bolivia

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In recent years, knowledge of the avifauna of Bolivia and its distribution has been increased by many new records providing numerous range extensions (see references). Here we present new data on the distribution and habitats of some Bolivian raptors. The specimens collected are deposited in the collection of the Estación Biologica de Doñana, Spain.

SLENDER-BILLED KITE *Rosthramus hamatus*

Recorded as a new species for Bolivia by Pearson (1975b) based on observations in the north of Beni Department. One individual was collected (EBD 6831A) at Arroyo Curiraba, c. 30 km E of San Borja, 28 Oct 1983, and another (EBD 7000A) 40 km W of San Ignacio de Mojos, 1 Nov 1983. Both localities are in SW Dpt. Beni, and correspond to flooded forest margins, in contrast to the open areas preferred by Snail Kites *R. sociabilis,* a much more abundant species in this area.

DOUBLE-TOOTHED KITE *Harpagus bidentatus*

Cited for eastern Bolivia by Bond & Meyer de Schauensee (1943), Meyer de Schauensee (1966) and Blake (1977), who make no reference to specific localities. In Dept. Beni (Tumichucua), Pearson (1975b) considered it to be rare. A female (EBD 6770A) was collected in a forest island 50 km E of San Borja (Prov. Ballivian, Dpt. Beni), 23 Oct 1983. It had a nearly completely formed egg in the oviduct, plus 3 others less well developed, besides abundant fat deposits in the abdomen. The stomach contained remains of a small rodent, a lizard and a beetle.

SHARP-SHINNED HAWK *Accipiter striatus ventralis*

This subspecies, found in subtropical and temperate Andean regions, ranges from Venezuela to Bolivia (Cochabamba) (Blake 1977). A juvenile male (EBD 6306A) was collected at Valencia (Prov. Murillo, Dept La Paz) c. 30 km south La Paz at 3000 m on 6 Mar 1983, in an area of cultivated fields and spiny vegetation (with *Schinus molle, Prosopis flexuosa* and cacti). This is an unusual locality for this species, which normally inhabits the moist forest of the eastern Andean slopes.

RED-BACKED HAWK *Buteo polyosoma*

Bond & Meyer de Schauensee (1943) and Meyer de Schauensee (1966, 1970) only give distributional references for the western part of the country; but see also Lönnberg (1903), Chubb (1919) and Niethammer (1956) for published records of specimens. Generally found in temperate and arid valleys throughout the year. Observations were made in the La Paz valleys (Rio Abajo) and various valleys in Depts. Cochabamba and Chuquisaca. One was seen at Animas (Prov. Murillo, Dpt. La Paz) in Nov 1983 collecting plant material, possibly for constructing a nest. In the northern altiplano, at 4600 m, observations and collections were made principally May-August (EBD 4751A, 4865A, 4866A, 4867A). In other parts of the altiplano this species was observed in April 1983 at Caracollo (Dpt. Oruro) and Jesus de Machaca (Dpt. La Paz). In June 1984, 5 individuals were seen between La Paz and Oruro, one at Challapata, 3 at Sevaruyo (Dpt. Oruro) and one at Sabaya (Dpt. Oruro); in Sep 1984, one was seen at Tiwanacu (Dpt. La Paz). Exceptionally, one immature specimen was collected north of Lake Titicaca, Dec 1982 (EBD 6179A). Based on the erratic occurence of individuals and the dates when observations were made in the puna, it seems likely that the above were winter migrants from the south, while at lower elevations in valleys, the species is a permanent resident.

PUNA HAWK *Buteo poecilochrous*

Very similar to *B. polyosoma,* which makes individuals distinguisable with difficulty in the field even by size *(B. poecilochrous* is slightly larger). The wing formula is distinctive, the fifth primary being longer than the third in *B. poecilochrous* (Vaurie 1962). Meyer de Schauensee (1970) considered the two to be entirely indistinguisable in the field, but it is possible to separate them by their flight patterns; *B. poecilochrous* has a silhouette similar to *B. albicaudatus,* that is, with broad wings, while *B. polyosoma* has a more slender silhouette with the wings proportionately narrower and longer and the tail relatively longer.

The distributional ranges of *B. poecilochrous* and *B. polyosoma* overlap to a great extent (Blake 1977). Nevertheless, at least in Bolivia, they tend to occupy distinct habitats, mainly separated by altitude. Our observations and collections of Puna Hawks were made on the altiplano and other montane localities up to 5000 m in Depts. La Paz, Oruro, Potosi and Cochabamba. In general they are found in steep, rocky places, even on the altiplano. A single observation was made of a pair 30 km W of Cochabamba city at 2500 m. Specimens are observed throughout the year in Bolivia, on many occasions in pairs.

SHORT-TAILED HAWK *Buteo brachyurus*

Known in Bolivia from one specimen from La Paz Dpt. (Niethammer 1956). We collected a specimen (EBD 8539A) at 1600 m in high, subtropical forest on the eastern Andean slopes in Prov. Chapare (Dpt. Cochabamba), 3 Apr 1985. The bird was sitting on a wooden electricity pole 3.5 m tall, in front of which was a small clearing. It was a sub-adult male, moulting to adult plumage (as indicated by the back and wing coverts), weighing 380 g. Its characteristics suggest that it belongs to the nominate race.

BLACK-AND-WHITE HAWK EAGLE *Spizastur melanoleucus*

One individual of this rare species was observed 50 km E of San Borja (Dpt. Beni), roosting in a leafless tree in a seasonally inundated savanna, 27 Aug 1985.

CINEREOUS HARRIER *Circus cinereus*

Reported from Dpts. Cochabamba, Oruro and Santa Cruz (Bond & Meyer de Schauensee 1943, Blake 1977, Parker & Rowlett 1984). Frequently observed at various localities in Dpt. La Paz (Niethammer 1953). Although Dorst (1956) collected a specimen in Dpt. Puno, Peru during the summer, most sightings and collections have been made in the austral winter, especially in the vicinity of Ulla-Ulla, and also in Pampa Galeras Reserve (Venero & Brokaw 1980). From the erratic occurrence of observed individuals, the birds are possibly coming from the more southern portion of their range, where they are partially migratory (Blake 1977).

OSPREY *Pandion haliaetus*

This species has recently been reported in Bolivia from Tumichucua (Dpt. Beni) (Pearson 1975a) and from the Rio Yata (Dpt. Beni) (Remsen & Ridgely 1980). Additional observations from the south of this Dpt. are as follows: one individual sitting on a post in a seasonally inundated savanna with temporary ponds near Trinidad, 5 Apr 1982; two sightings (possibly of the same individual) at the junction of the Rio Matos and the San Borja-San Ignacio de Mojos road, c. 65 km E of San Borja, 16 and 19 Jun 1985. Another new distribution point in Bolivia is provided by the observation of one seen fishing in the Rio Suches (Ulla-Ulla Reserve, Dpt. La Paz), 27 May 1982, c. 100 km N of Lake Titicaca, 4400 m (Serrano & Cabot 1982).

CRESTED CARACARA *Polyborus plancus*

One juvenile was seen in association with a juvenile of *Phalcoboenus megalopterus* in an area of fields and pastures near Tiraque (Prov. Arani, Dpt. Cochabamba) at c. 3800 m, 6 Aug 1984. This Andean locality is unusual for this species, which is widely distributed in Bolivian lowlands.

ORANGE-BREASTED FALCON *Falco deiroleucus*

Remsen & Ridgely (1980) give data on this species from Buena Vista (Dpt. Santa Cruz). Later Remsen & Traylor (1983) refer to a specimen collected on Cerro San Micerato (Prov. Chiquitos, Dpt. Santa Cruz). We observed one individual flying over the Rio Yacuma, c. 12 km NE of Santa Ana (Prov. Yacuma, Dpt. Beni); one was collected (EBD 5720A) in sub-tropical forest on the E Andean slopes at 1100 m in the Chapare (Dpt. Cochabamba), 8 Sep 1982; and one was seen at the same locality in the Chapare, 3 Apr 1985.

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Notes on Philippine Birds, 11.
New or important records for the Island of Palawan

by Robert S. Kennedy, Philip O. Glass, Elena J. Glass, Pedro C. Gonzales & Edward C. Dickinson

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Palawan is a slender mountainous island c. 400 km long with an average width of 35 km and a maximum elevation of 2073 m. It lies on the Sunda Shelf in the South China Sea on the western border of the Philippines. The fauna of Palawan is primarily of Southeast Asian and Bornean origin (Dickerson 1928) and it shares more bird species with these areas than with the remainder of the Philippines.

Blasius (1888), Whitehead (1890) and Delacour & Mayr (1946) have published lists of the birds of Palawan. duPont (1971) incorporated subsequent records, which included a recently discovered species *Stachyris hypogrammica* described by Salomonsen (1961).

In this report, we present 12 sight records and 3 specimen records of birds previously unrecorded from Palawan. For some migrants and some widely distributed species, these records substantiate what was already suspected regarding their occurrence on the island. We also provide 9 additional records of species known from only a few specimens (many of which records were previously unpublished), ringing records or previous sightings. P. and E. Glass obtained a large share of these records over a 2-year period, from April 1977 to March 1979, on Palawan. All but one of the unpublished specimen records were added by Gonzales from the collections at the Philippine National Museum. Other records were discovered while Kennedy, Dickinson and M. Levin joined P. and E. Glass on field trips in Palawan.

Species accounts

In the accounts below, we have abbreviated the names of the persons who sighted or collected the recent records: E. Dickinson (ED), E. Glass (EG), P. Glass (PG), R. Kennedy (RK) and Michael Levin (ML); and the names of museums: American Museum of Natural History (AMNH), Philippine National Museum (PNM), and Wildlife Collection, College of Forestry, University of the Philippines at Los Banos (WC-UPLB). All Km readings on roads refer to the Km posts on the Philippine National Highway. When we use the term "winter" we mean the northern winter. The taxonomy and English names of the species of birds follows King, Dickinson & Woodcock (1975).

LITTLE GREBE *Tachybaptus ruficollis*

Between 20 and 22 Dec 1978, PG and EG sighted 16 Little Grebes at Lake Danao, a large, deep freshwater lake in Taytay municipality, northern Palawan. At least 8 were adults with cheeks, sides of necks and throats shiny rufous, the others having buffy cheeks and necks probably being young of the year. Sighted singly or in pairs (twice), swimming and diving in the deep, clearer parts of the lake.

Remarks. First records for Palawan and probably *T.r. philippensis,* which occurs in the northern Philippines and is not known to migrate (Vaurie 1965). Probably a breeding resident on Palawan.

ORIENTAL DARTER *Anhinga melanogaster*

PG and EG saw at least 15 individuals, all in adult plumage, between 20 and 22 Dec 1978 on Lake Danao.

Remarks. First records for Palawan. Probably an uncommon breeding resident.

GREAT BITTERN *Botaurus stellaris*

PG saw 5 on 14 Feb 1979 in a freshwater marsh near Km 57,S at Iwahig, Puerto Princesa. All were in adult plumage and were identified by their large size, brown and black mottling on their backs, and by their characteristic bittern behaviour of "freezing" with upturned bills after landing in tall reeds.

Remarks. First records for Palawan. Only one previous record from the Philippines, a specimen collected at Laguna de Bay, Luzon on 12 Mar 1905

(McGregor 1905). Presumably *B.s. stellaris* and a rare winter visitor to Palawan.

YELLOW BITTERN *Ixobrychus sinensis*

PG and EG identified one in adult plumage on 21 Dec 1978 at Lake Danao.

Remarks. Individuals have been ringed at Iwahig, Puerto Princesa: 1965(7), 1968(2), 1969(2) (McClure & Leelavit 1972). Subspecies and status uncertain.

LITTLE EGRET *Egretta garzetta*

PG and EG sighted 10 individuals on 28 Sep 1978 (with RK) in newly planted rice fields at Iwahig, Puerto Princesa at Km 27,S; 10 on 3 Oct 1978 on the mudflats along the seashore at the end of the airport runway in Puerto Princesa; 11 on 12 Oct 1978, 2 on 1 Nov 1978 and 2 on 13 Jan 1979 (with ED and ML) in fishponds 1 km E of Km 14,N in Tagburos, Puerto Princesa; and c. 40 on 14 Jan 1979 near fishponds at Km 21,S at Iwahig. All birds were in winter plumage.

Remarks. Previously known in Palawan from only 2 specimen records: 1 collected 4 Apr 1932 from the Malampaya River (Dupond 1942); and 1 unpublished record (PNM 14188) collected 6 Mar 1973 from Panacan, Aborlan municipality, by R. Sison and A. Castro. Also known from trapping and ringing records from Iwahig, Puerto Princesa: 1965(2) and 1969(1) (McClure & Leelavit 1972). Delacour & Mayr (1946) list this species only from Cagayancillo in the Palawan group. Subspecies *E.g. garzetta.* Today, a common migrant and probably resident.

GREAT EGRET *Egretta alba*

PG, EG and RK saw 4 on 28 Sep 1978 in rice fields near Km 27,S at Iwahig, Puerto Princesa, and PG, EG, ED and ML saw 2 more there on 14 Jan 1979. PG and EG saw 1 on 12 Oct 1978 and 1 on 1 Nov 1978 at the fishponds near Km 14,N at Tagburos, Puerto Princesa; and 3 on 21 Dec 1978 at Lake Danao. All birds were in winter plumage.

Remarks. Previously known from one unpublished specimen record (M. LeCroy, AMNH 782990) from Palawan collected 17 May 1962 by J. Ramos. Believed to be *E.a. modesta* as this is the only subspecies known from Asia (Vaurie 1965) and the Philippines (duPont 1971). Evidently an uncommon winter visitor to Palawan.

WANDERING WHISTLING DUCK *Dendrocygna arcuata*

PG and EG sighted 15 on 21 Dec 1978 at Lake Danao and a flock of at least 80 on 9 Feb 1979 at a freshwater marsh c. 4 km N of Km 53,S at Inagawan, Puerto Princesa. PG and EG bought one immature female (now in WC-UPLB) on 9 Feb 1979 from a resident of Inagawan who had captured it 2 months earlier.

Remarks. First records for Palawan. *D.a. arcuata.* Apparently a common resident in favourable habitat.

GARGANEY *Anas querquedula*

PG and EG identified 14 (5 appeared to be immatures) on 16 Oct 1978 and PG, EG, ED and ML saw 2 on 13 Jan 1979 at fishponds near Km 14,N in Tagburos, Puerto Princesa.

Remarks. First records for Palawan. Appears to be an uncommon winter visitor.

CHINESE GOSHAWK *Accipiter soloensis*

PG, EG and RK sighted 2 (1 adult and 1 tentatively identified immature) on

28 Sep 1978 in a small clearing adjacent to primary forest 500 m NW of the Palawan Construction Mining Corporation (PCMC) mining road near Irahwan, Puerto Princesa. Both birds were feeding on a large swarm of hovering insects that appeared to be small bees. They flew through the swarm and caught the insects in their feet. All field marks of the adult were noted including the diagnostic pattern of the underside of the wing – white inner primaries and secondaries contrasting with the blackish outer primaries. The immature was identical with the adult in size, in colour of the upperparts and tarsus, and in flight and feeding behaviour. It differed by having a yellow cere, dark iris, a mesial stripe, rufous-streaked breast, barred abdomen and flanks and a more finely barred tail.

Remarks. First records for Palawan. Apparently an uncommon winter migrant.

RUFOUS-BELLIED EAGLE *Hieraaetus kieneri*

PG and EG saw 2, believed to be a mated pair, soaring and diving into the primary forest between 27 and 30 Jan 1979 at 700 m on the west slope of Cleopatra's Needle Mountain in Puerto Princesa municipality. One repeatedly perched on an exposed branch near the top of a steep ridge c. 70 m from the trail to their camp-site. Both birds called several times with a double note, high pitched scream "kree-kree" preceded by 1-2 short "kuk-kuk" notes.

Remarks. First records for Palawan. Believed to be *H.k. formosus* and an uncommon resident on Palawan.

CHANGEABLE HAWK-EAGLE *Spizaetus cirrhatus*

PG and EG saw 1 on 3 Aug 1978 in primary lowland forest at Panablan, St Paul's Subterranean River National Park, Puerto Princesa; and PG, EG, ED and ML sighted 1 on 15 Jan 1979 flying over primary forest near Km 68,N at Caliquasan, San Rafael, Puerto Princesa. Both birds were adults in the dark plumage phase.

Remarks. An unknown number of specimens of this species were collected by J. Whitehead (Sharpe 1888) and Dr Platen (Blasius 1888). Whitehead (1890) reported it to be "scarce". A single specimen was taken by duPont (Meyer de Schauensee & duPont 1959) on 25 July 1958 in Puerto Princesa. Also known from 2 previously unpublished specimen records: 1 (PNM 6922) collected 11 May 1963 in the municipality of Quezon by P. Gonzales and M. Celestino; and 1 (PNM 8532) taken 15 Mar 1967 on Mt Victoria, Aborlan by G. Alcasid, P. Gonzales and J. Ramos.

COMMON MOORHEN *Gallinula chloropus*

PG and EG saw 1 on 21 Dec 1978 at Lake Danao and at least 12 on 14 Feb 1979 at the freshwater marsh near Km 57,S at Iwahig, Puerto Princesa.

Remarks. Only 4 previous records for Palawan: 1 ringed at Iwahig in 1967 (McClure & Leelavit 1972); 2 unpublished specimen records (PNM 9021, 9022) collected 15 Mar 1968 from Marble, Mt Cabayungan by P. Gonzales and J. Ramos; and one published record of *G.c. lozanoi* taken at Iwahig during May 1970 (Amadon & duPont 1970).

EURASIAN COOT *Fulica atra*

PG and EG sighted 1 on 21 Dec 1978 on Lake Danao.

Remarks. First record for Palawan. Probably *F.a. atra* as this subspecies is widespread in Asia and some northern birds migrate to Luzon (Vaurie 1965). Clearly an uncommon migrant to Palawan.

BLACK-WINGED STILT *Himantopus himantopus*

PG, EG and RK saw 6 on 27 and 28 Sep 1978 in rice fields at Km 21,S at Iwahig, Puerto Princesa. PG, EG, ED and ML observed 5 on 14 Jan 1979 on mudflats near the fishpond complex at Km 20,S at Iwahig. One bird in Sep was subadult, the rest were adults.

Remarks. First records for Palawan. Subspecific status is uncertain as both *H.h. himantopus* and *H.h. leucocephalus* have been recorded from other islands in the Philippines. Although not previously reported, Gonzales saw this species in suitable habitat at Iwahig long before these sightings. We now have records during the months of Jan, Feb, May, July and Sep at Iwahig, which suggests that it might be breeding there.

MARSH SANDPIPER *Tringa stagnatalis*

PG, EG and RK saw 25 on 27 Sep 1978 in a freshly planted rice field at Km 27,S at Iwahig, Puerto Princesa. PG and EG observed 30 on 12 Oct 1978, 5 on 15 Oct 1978, and 5 on 26 Oct 1978 on mudflats near the fishponds at Km 14,N at Tagburos, Puerto Princesa; and 3 on 14 Jan 1979 on the mudflats at a large fishpond near Km 20,S at Iwahig. All birds were in winter plumage.

Remarks. Previously known only from birds trapped and ringed at Iwahig: 1965(1), 1966(1), 1967(2), 1968(1), 1969(1), and 1970(14) (McClure & Leelavit 1972). Evidently an uncommon migrant to Palawan.

COMMON GREENSHANK *Tringa nebularia*

Flocks of 10-35 in winter plumage seen on 10 occasions between 13 Jan 1978 and 20 Jan 1979 at the fishponds near Tagburos and Iwahig, Puerto Princesa and in rice fields at Km 27,S at Iwahig. All observers were present on one or more of the occasions.

Remarks. Known from one previously unpublished specimen record (PNM 13287) collected 30 Sep 1969 from Iwahig by T. Oane and from birds trapped and ringed at Iwahig: 1965(2), 1966(4), 1967(2), 1968(1), 1969(1), 1970(2) (McClure & Leelavit 1972).

RED-NECKED PHALAROPE *Phalaropus lobatus*

PG and EG observed at least 30 on 7 Sep 1978 c. 1 km from shore in Ulugan Bay, northwestern Palawan; 1 on 27 Sep 1978 (with RK) in a rice field at Km 27,S at Iwahig, Puerto Princesa; and at least 70 on 6 Oct 1978 c. 2 km from shore in Honda Bay near Puerto Princesa. All birds were in winter plumage.

Remarks. First records for Palawan. Probably a common offshore winter visitor.

CURLEW SANDPIPER *Calidris ferruginea*

PG, EG and RK observed 1 on 27 Sep 1978 in a rice field at Km 27,S at Iwahig, Puerto Princesa. The bird was moulting from the breeding plumage.

Remarks. Fifth record for Palawan: 4 previously unpublished specimen records from Iwahig, all collected by T. Oane: 1 during September 1966 (PNM 8178); 1 on 30 Sep 1969 (PNM 13304); 1 on 30 Apr 1970 (PNM 13332); and 1 on 11 May 1970 (PNM 14862). Seemingly an uncommon to common migrant to Palawan.

COMMON BLACK-HEADED GULL *Larus ridibundus*

PG and EG sighted 2 on 20 Feb 1978 near the Puerto Princesa City pier; 1 on 16 Oct 1978 at the fishponds at Tagburos, Puerto Princesa; and 1 on

14 Jan 1979 (with ED and ML) at the fishpond complex near Km 20,S at Iwahig, Puerto Princesa. All birds were in winter plumage.

Remarks. First records for Palawan. Believed to be an uncommon winter visitor.

RED-RUMPED SWALLOW *Hirundo daurica*

PG, EG and RK observed 1 on 28 Sep 1978 flying over a fishpond near Km 20,S at Iwahig, Puerto Princesa. Another was seen by PG and EG on 7 Nov 1978 flying over an open field near the P.C.M.C. mining road turn-off at Km 17,S at Iwahig.

Remarks. Known from one previously unpublished specimen (*H.d. striolata*) (PNM 13309) from Iwahig, collected 25 Apr 1969 by T. Oane, and from birds trapped and ringed at Iwahig: 1965(4), 1967(4) (McClure & Leelavit 1972). Probably passage migrants.

SIBERIAN BLUE ROBIN *Erithacus cyane*

PG and EG collected 1 female (*E.c. bochaiensis*) (PNM 16299) on 27 Jan 1979 in primary forest at 750 m along the west ridge of Cleopatra's Needle Mountain, Puerto Princesa municipality. Before it was netted, they observed it hopping along the forest floor and to and from the ground to low branches. It gave low weak call notes "chek, chek . . ." at 1-second intervals.

Remarks. First record for Palawan and fourth record for the Philippines. Considered a rare winter visitor.

NARCISSUS FLYCATCHER *Ficedula narcissina*

PG and EG sighted 1 male and collected 1 female (*F.n. narcissina*) (PNM 16298) in non-breeding condition on 28 Jan 1979 in montane forest at 1140 m on Cleopatra's Needle Mountain, Puerto Princesa municipality.

Remarks. First records for Palawan. Believed to be an uncommon winter resident.

ASIAN BROWN FLYCATCHER *Muscicapa latirostris*

PG, EG, ED and ML observed 1 from 10 m on 14 Jan 1979 in primary forest at 690 m on Mt Beaufort, Puerto Princesa municipality. They clearly saw the uniform grey breast band (without mottling) and faint eye-ring that distinguishes this species from *M. sibirica.*

Remarks. First record for Palawan. Subspecies not identified, but it was clearly not *M.l. randi,* which is endemic to Luzon and Negros. Considered a rare winter visitor.

EURASIAN TREE-SPARROW *Passer montanus*

PG and EG found this species to be well established in Puerto Princesa and at other locations within the city limits from Nov 1977 to Feb 1979. They located numerous nests with eggs, nestlings, and attendant adults in the Puerto Princesa Cathedral throughout the year.

Remarks. First records for Palawan. Subspecies uncertain.

Acknowledgements: The authors are grateful to M. LeCroy for calling our attention to the specimen of *E. alba* in the AMNH and to the collectors of the previously unpublished specimen records. PG and EG thank the Smithsonian Institution – Peace Corps Environmental Program and the Philippine Bureau of Forest Development for supporting their work. RK wishes to thank the Marcos Foundation, Bureau of Forest Development, Philippine Airlines, San Miguel Corporation, Haribon Foundation, Inc., World Wildlife Fund and National Geographic Society for generously supporting his field work in the Philippines. The kind help of the staff of the PNM and D. Rabor and his assistants is greatly appreciated.

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IN BRIEF

The Bird Exploration Fund

The Bird Exploration Fund of the British Museum (Natural History) was established by Trust Deed in 1950 and is a registered charity Number 313019. The Fund is a small one, with only limited assets, but has over the years given some financial assistance to various ornithological projects both at home and abroad, usually by supporting field studies. It has also provided aid for the curation and improvement of the ornithological research collection at the British Museum (Natural History), which was the original aim of the BEF.

BOU members and friends who would like to help encourage the work of ornithological research world-wide can arrange to make a donation, bequest or legacy, by contacting the BEF Treasurer, c/o The Sub-dept of Ornithology, British Museum (Natural History), Tring, Herts HP23 6AP.

16 July 1986 Graham Cowles
Secretary

Books Received

Brosset, A. & Erard, C. 1986. *Les Oiseaux des Régions Forestières du Nord-est du Gabon.* Vol. 1. Ecologie et comportement des espèces. Pp. 297. 54 black-and-white photographs. Société Nationale de Protection de la Nature, Paris. 200FF (250FF outside France), paperback. 16 x 24 cm.

The book covers the Makokou-Belinga area, which involves the upper basin of the River

Ivindo, bordering Cameroon and Congo. Short introductory sections cover climate, vegetation and the zones explored, followed by summaries for 420 species of the data obtained by the CNRS/MNHN team 1963-85, with details of status, abundance, breeding, habitat preference, etc. – an important summary of a large body of new and valuable data. Volume 2 will deal with more general problems of community and population ecology, for comparison particularly with similar studies elsewhere in the humid tropics.

Urban, E. K., Fry, C. H. & Keith, S. (Eds.). 1986. *The Birds of Africa.* Vol. 2. Galliformes to Columbiformes. Pp. 552. 32 colour plates by Martin Woodcock. Black-and-white drawings by Ian Willis. Academic Press. £65.00. 24 x 32 cm.

Volume 2 of this immense work appears 4 years after Vol. 1 in the same excellent format and at the same excellent standard of detailed, informative text and diagnostic colour plates. All species from guineafowl to turtledoves are included, not excluding migrants and vagrants. The illustrations now embarce all main plumages of every species and the series is to be exapnded to 6 volumes, Vol. 3 covering the remaining non-passerines.

Johnsgard, P. A. 1986. *The Pheasants of the World.* Pp. 300. 53 colour plates by Henry Jones, many line drawings and maps. Oxford University Press. Hard covers. £42.50. 22 x 28 cm.

Dedicated to the memory of Jean Dealcour (1890-1985), this book, the latest in the line of monographs from Elliot (1870-72), Beebe (1918-22) and Delacour (1951, 1977), includes reproductions of watercolour paintings of all the known species of pheasants, all but 2 (specially painted by T. J. Greenwood) by Major Henry Jones, who worked in the Library of the Zoological Society of London early this century and whose impressive talent has only recently been publicly recognised. His detailed accuracy in no way spoils the inherent beauty and charm of his watercolours, and the colours are magnificent.

The text is important. The first, shorter, part covers classification, behaviour, ecology and population biology, reproduction and, in particular, conservation, etc. The main text deals in detail with each species under 16 genera from *Ithaginis* to *Afroparvo,* illustrated (mostly apparently anonymously) attractively by line drawings, especially of courtship displays. It is an authoritative text in a well produced book – a volume for anyone with or without an ornithological bent to own and enjoy. The Zoological Society are to be congratulated on their initial suggestion for such a volume.

Elter, O. 1986. *Cataloghi VIII – La Collezione Ornitologica del Museo Zoologia dell'Università di Torino.* Pp. 513. Turin University. (No price given.) 17 x 24 cm. Soft covers.

The introduction is illustrated and includes 5 colour plates; an 1830 portrait of F. A. Bonelli ("rightly considered the real founder of the Turin Museum"); and an appreciation of the other most eminent Italian scientist of the last century, Count Salvadori (his contribution to Papua and New Guinea being recognised by honouring him with a portrait on one of their stamps). The book is in Italian, but the introduction is also in English.

The specimens are individually detailed, species under genera, both in alphabetical sequence, with codes to show author, locality, donor and number of specimens available. The catalogue is "not critical: its sole aim is to provide specialists with a list of the ornithological material" kept at Turin. This the book does most successfully, though only down to species level.

Chalmers, M. L. 1986. *Annotated Checklist of the Birds of Hong Kong.* 4th (revised) edition. Pp. 279. Hong Kong Bird Watching Society (G.P.O. Box 12460, Hong Kong). HK$50 (local), HK$65, US$8.50, £5.50 elsewhere. Paperback. 15 x 21 cm.

The first edition appeared 1960 and has been revised and re-written now 3 times. Following a brief introduction, the species are dealt with by categories, by far the largest being for species recorded in the last 50 years only, of which only 82 are resident, the remainder (some 300) being migrants. The commonest species have histograms of occurrence showing the number of years in which each has been noted, plotted for each quarter-month of the year, covering the 25 years 1958-82, placed on the left-hand page, which is otherwise usefully left blank for personal notes. The annotated bibliography of 15 pages by David Melville is a most welcome compilation. The end-paper map is regrettably too faint to be properly legible.

Penny, M. 1986. *The Birds of Seychelles.* Pp. 160. 12 plates by Chloë Talbot-Kelly. Collins. £7.95 paperback. 12.5 x 19 cm.

A paperback issue of the book first published in 1974 and last reprinted in 1982, and which has proved repeatedly of great use to large numbers of visitors to these important islands.

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